THE NEWSPAPER FOR IT LEADERS . WWW.COMPUTESWISE D. COM MAY 5, 2003 - VOL 37 - NO 18 - \$5/00PV

MOBILE & WIRFLESS





less technology is sboring in some unexpected places these days, supplying the backbone for critty applications in coal mines, at ship yards and even on the battlefield. Meanwhile, industry pioneers are still testing the technology's

a second generation of wireless adopters. STORIES REGIN ON PAGE 27.

Offshore Coding Work Raises Security Concerns

Outsourcing critical software development to foreign workers puts systems at risk, users say

MYRTLE BEACH, S.C.

rious questions about the U.S. software industry's reliance on overseas software developers, arguing that the practice puts companies

and the U.S. economy at risk. A recent study by Gartner Inc. predicts that by 2004. more than 80% of U.S. come nies will consider outsourcine critical IT services, including software development, to countries such as India, Pakistan, Russia and China, But some users said the trend needs to be given a sanity check in light of recent changes in the global security

At last week's Techno-Secu-

rity Conference here, users peppered a panel of corporate IT professionals are raising se- security officers with questions about the wisdom of outsourcing

software development to cheap labor overseas, where there is little or no way to ascertain the security risk that workers may pose

Pfizer Moves **Broadband Out** To Sales Force

Remote workers get routers, VPN software for distributed net

Pfizer Inc. plans to have about 10,000 of its 13,000 field sales workers hooked up by year's end to either high-speed cable modem or Digital Subscriber

Of particular concern to some attendees is the work that is being sent to China. While not yet a major provider of outsourcing services.

China has a significant eco nomic espionage program that targets U.S. technology, the users ooted. Also of concern are countries in Southeast Asia, particularly Malaysia and Indonesia, where terrorist

networks are known to exist. Speaking directly to Oracle Offshore Coders, page 16

Line services - a project that analysts said would create the largest corporate broadband

network built for remote workers thus far lay Stallard, senior manager of business technology and information sciences at Pfizer, said the New York-based pharmaceuticals maker will provide each of the workers with a low-end router and virtual

private network software for connecting to the company's back-office systems. The network hardware be-

Pfixer, page 53

Windows 2003 Compatibility Issues Upset Some IT Pros many older versions of Micro

Older versions of Exchange, SQL Server won't run on new OS

BY CAROL BLIWA Some IT managers aren't hap py. Others are more understanding. But all of those plan ning to upgrade to Windows Server 2003 will find that

soft Corp.'s most popular server applications won't run on the new operating system. Only SQL Server 2000 with

Service Pack 3 can be installed on Windows Server 2003. Users running SQL Server 6.5 or 7.0 will have to upgrade or wait for the SOL release code-Windows 2003, page 53



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Unicenter Managing Business Infrastructure



mputer Associates*

NFWS

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- U.S. companies doing business in Canada have seven months to comply with a consumer privacy law.
- 7 IBM expands its grid computing offerings, but it doesn't expect much demand until standards are complete.
- High-tech CEOs are facing the economic realities of the marketplace.

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- Unicenter tools, joining the push for on-demand computing.
- 12 IBM is set to ship its first storagearea virtualization device for blocklevel data.
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SPECIAL REPORT Mobile & Wireless

Wireless at Work

Wireless is expanding its job description to include some gritty applications. Read how service

technicians, buildozer operators and police officers use the technology to get their jobs done. Also, industry pioneers are still testing the limits of wireless

and inspiring a second generation of adopters. PACKAGE BEGINS ON PAGE 27.

30 Wireless Gets Down to Business. In the hands of

creative pioneers, wireless technology is breaking new ground, with applications that range from the everyday to the extraordinary. Readabout innovative wireless uses in to key sectors, including a WLAN upgrade at Carnegie Mellon University led by Chuck Barrel (below, left) and St. Vincent's Hospital's wireless voice technology pilot, led by fins Setthelimer (below).



38 Working-Class Wireless. Thanks to a wireless sys-

I hanks to a wireless system installed on all 10,000 of its trucks, Sears repair technicians can transmit data from customer sites anywhere in the U.S. to the company's back-end systems, says Sears IT ex-

ecutive Dave Sankey (right). Also, read how "smart" bulldozers use wireless to make their way around a coal mine and how a shipyard automatically creates payroll and cost records using wireless.

40 Analyst Report Card. Industry watchers from the top analyst firms weigh in on which wireless acqments and wesdors are making the grade for corments and wesdors are making the grade for cortical control of the control of the cortical WIANs are earning to manysts say. Also, results from our online survey reveal what readers had to say about their future wireless plans.

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42 The Wireless LAN FAQ. Thinking of deploying a WLAN? Read answers to six frequently asked questions about capacity planning, interference and security concerns.

44 On the Hooks of the Pioneera. They learned from the leaders, and now these second-generation adopters are adapting wireless technology to meet their own business goals. Read what prompted these smaller companies to go wireless, what tools they used and how their projects are working out.



Mobile & Wireless News Get the day's news from Computerworld's Mobile & Wireless World conference in Palm Desert, Calif., featuring enduser case studies and panel discussions. The four-day conferture burden. Therefor. Mars 6Installs WLAN Sear

A new Wi-Fi-based network at the Post Falls, Idaho, police department provides patrol officers in a 60-equare-mile area with e-mail and direct access to the FBY National Crime Information Court Attahes.

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WLAN Deployment Checklis
Follow this step-by-step guide
to easure proper deployment of
your wireless LAN. Read tips
on network design, security
protection and centralized

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HP Combines Its Hardware Groups

Almost a year to the day after it acquired Compaq Computer Corp., Hewlett-Packard Co. on May 2 announced a reorganiza tion that includes combining several server and storage hardware groups into a single division. HP said it's also creating a unit that will manage its internal IT operaons and business planning, rategy development and ente

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Trade Group Sees

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Short Takes

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AT DEADLINE | Oracle Database Users' Interest in Linux Grows

Conference attendees say they plan to evaluate OS, despite lack of applications

BY MARC L. SONGINI

EXPITE THE relative newness of corporate applications running on Linux, attendees at an Oracle database user conference last week said a growing number

of companies are evaluating or moving into production with database servers running the open-source operating system "Linux is on fire," said Rich Niemiec, president of the Chicago-based International Oracle Users Group (IOUG) In a recent survey of about 100

IOUG members, roughly half indicated that they were interested in running mission-critical Oracle databases on Linux, Niemiec said at the independent user group's annual conference. That's up from only about 15% in a survey conducted a year ago, he added. Niemiec, who is also CEO of

Lombard, Ill-based THSC on Oracle consulting and services firm, attributed the increase in user interest to Oracle Corp.'s alliance with Linux vendor Red Hat Inc. and its support for clustering Linux machines via its Real Application Clusters (RAC) technology.

Andrew Mendelsohn, senior vice president of database and application server technoloeries at Oracle, said as much as 15% of RAC users are running the clustering technology on

Linux systems, up from almost none at this time last year. Among the companies that are using Linux-based Oracle databases is Aventis Behring LLC, a maker of pharmaceuticals in King of Prossia Pa lesse Crew, manager of global systems at Aventis Behring, said the subsidiary of Parisbased Aventis SA is running

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Mendelsohn said Oracle is working "to get the ball rolling" on application support For example, the company in March announced a program for providing funding to software vendors that agree to port their products to Linux

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It will be a violation to col-

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William Maguire, C10 at Legato Systems Inc., a Mountain View, Calif.-based maker of data storage software, said he's currently testing Oracle% on Linux. "The reliability and performance is proven now." said Magaire, although he has

not set any rollout plans yet. RETTER MANAGEMENT Oracle last week detailed plans to upgrade

Canadian Privacy Law **Deadline Approaching** U.S. companies

must comply by first of the year BY JAIKUMAR YIJAYAN The clock is winding down for

U.S. companies that exchange data with other businesses and subsidiaries in Canada to comply with a law providing broad privacy protections for Canadian citizens Beginning Ian. 1, 2004, all

companies that collect, use or disclose personal information about Canadian citizens during the course of commercial activities will have to come with Canada's Personal Information Protection and Electronic Documents Act.

Since Canada is our largest trading partner, a lot of companies will be affected by this," said Mark Rasch, former head of the U.S. Department of Justice's computer crimes unit and senior vice president at Solutionary Inc., a security consultancy in Omaha. The act is already in effect

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lect data in Canada and then transfer it out of the country. unless the transfer carries with it the same level of protection that's required in Canada, Rasch said. tion companies and telecom-The law requires U.S compamunications firms. It requires

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measures. Parker said. Canadian companies sharing data with U.S businesses must also *ensure the U.S. recipient commits, by contract or otherwise, to the same standards imposed by [the privacy artl" szid Michael Miasek, an attorney in the Toronto office of Baker & McKenzie, a Chicago-based law firm that's beloing U.S. companies comply

Since the rules retroactively apply to data collected prior to January 2004, companies will need to determine when and how they collected any data they may have on Canadian citizens and how it's being used, privacy experts said.

with the act

IBM. Microsoft choose OASIS over W3C

BY CAROL SLIWA More than a few feathers were ruffled when the Organization for the Advancement of Structured Information Standards (OASIS) announced last week that a technical committee formed to standardize the Business Process Execution Language for Web Services (BPEL4WS) would hold its first meeting later this month.

Debate has been heated

since it became clear that Microsoft Corp. and IBM would

submit to OASIS, under royalty-free terms, the BPEL4WS 1.1 specification they co-authored with BEA Systems Inc., SAP AG and Siebel Systems Inc. That's because another leading standards body, the

World Wide Web Consortius (W3C), had already established a chorcography working group to address the simi-

been testing an IBM grid on an

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on investment strategies. The

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Schwab has been able to re-

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aging and executing business processes that are composed of Web services. The W3C's specification is called the Web Services Choreography Interfrom or WSC1

Oracle Corp., which cochairs the W3C's choreography working group, said it has

avail - to encourage IBM and Microsoft to bring BPEL4WS to the W.W. "We were not enthusiastic

worked hard - to date, to no

insists that whatever his ven-

dors move to production is based on open standards. The intent of grid comput ing is to harness unused com puting power that's available in mainframes, servers and

desktops and apply it in supercomputerlike fashion to computing problems. "If you look at server utilization in an enterprise, there

is a lot of untapped potential," said Dan Powers, IBM's vice president for grid compating. Windows desktops and servers are used anywhere be-Dibble said be's convinced that | tween \$% and 10% of the time over a 24-bour

period; Unix fused lanywhere between 10% and 20% over that same peri-

od, he said. Powers noted that he believes interest in grid computing will

accelerate once standards work is completed Charlie Catlett, head of the Global Grid Forum, said one thing standards will accomplish is increasing the number of grid-enabled applications by lowering the barrier to entry. especially for smaller companies. Without standards, companies have to write "soun-tonuts solutions" to make them work, Catlett said.

about Microsoft and IRM going to OASIS," said Don Deutsch, vice president of standards strategy at Oracle.

"Primarily, our rationale was we feared fragmentation in the Web services space. When er there are multiple activities in the same technical space there is a danger that they will overlap and compete. And if that happens, a likely result is confusion in the marketplace. and everybody loses."

Not Taking Sides

Now it will apparently fall to companies such as Oracle. BEA, SAP and Sun Microsystems Inc. to monitor the two groups and make sure their work is complementary. Those are some of the vendors that have indicated their intention to sit on both the W3C's choreography working group and the OASIS technical commit tee for BPEL4WS, which will

hold its first meeting May 16. "Sun is going to try to take the high road here. We're going to try to find alignment between these two efforts. At the end of the day, the industry needs only one specification for Web services choreography," said Ed Julson, Sun's group manager of Web services standards and technologies. Sun worked with BEA.

SAP and Intalio Inc. on WSCI, which Julson said "has more similarities than differences" with RPFI Representatives from IBM and Microsoft said last week that they have no plans to act on invitations to join the

W3C's choreography working group, Steven VanRockel, Web services marketing director at Microsoft, said the company might join the W3C group at a

But VanRoekel also said Microsoft feels that Billerics, Mass,-based OASIS is a good place for higher-level specifications such as BPEL. He said the W3C typically handles lower-, plumbing-level stan dards such as XML and SOAP. He also noted that the scope of the W3C's choreography group is broader than that of

the RDEL committee Karla Norsworthy, who

rakes on arrive role in stan-

dards work as the director of dynamic e-business technologies at IBM, said her company won't participate in both the OASIS and W3C groups because its "first focus is on BPEL." She didn't rule out the possibility that the decision

could be revisited, however. Norsworthy added that it will take hard work to make sure there is a single standard that every vendor implements. and she noted that REA SAP Oracle and other companies

will participate in both the OASIS and W3C groups that deal with the topic

"They're definitely putting the burden on someone else to fix the problem they're creating," said Eric Newcomer, chief technology officer at lona Technologies PLC in Dublin Newcomer, who serves as

editor of the W3C's Web services architecture working group, said his company is "definitely disappointed about this sign of fragmentation in

the community." He said threats of divergence have surfaced before,

but this marks the first time an "explicitly overlapping" charter was set up in an area where a working group was already established.

IBM Expands Grid Computing Offerings

But it doesn't expect big demand until standards are set

BY PATRICK THIBODEAU IBM last week expanded its industry-specific and computing offerings, even while it acknowledged that widespread adoption of grid technology won't accelerate until stan

dards work is complete. The Global Grid Forum in Anzonne, Ill., which is developing grid specifications, is about a year away from producing enough of them to simplify development work. The standards are intended to provide developers with the basic plumbing of a grid environment, such as a common way for applications to discover what resources are available on a network and the protocois to access them.

Commercial Potential Early grid-computing use has been in technical areas, such as science and engineering. But commercial adoptions are

One early adopter is David Dibble executive vice president at Charles Schwab & Co.'s grid approaches will be widely adopted. "I be-Grid Focus Name the future will be net-

INDUSTRIES NOW SUPPORTED BY IBM: worked-based computing," he a Petroleum said. "The days of one application owning a box ... a Agricultural chemicals are gone. Comp. nies have got to a Higher education

face up to the new business reality that a dollar has to go much further today than it ever did in the post." Dibble said he expects grid computing to reduce costs, especially for hardware. "There's no question about it - buge savings through better utiliza-

tion," he said. He noted that he sees little risk in implementing grid processes before standards are complete because be

HP Combines Its Hardware Groups

Almost a year to the day after it acquired Compaq Computer Corp., Hewlett-Packard Co. on May 2 announced a reorganiza tion that includes combining several server and storage hardware ups into a single division. HP said it's also creating a unit that will manage its internal IT operations and business planning, strategy development and anterorise marketing activities.

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Trade Group Sees Slim Job Growth

The U.S. IT workforce grew by less than 1% in the first quarter ared with the level at the end of 2002, according to a report due to be released today by the information Technology Asiation of America (ITAA) in ston. Va. Just 86,000 inhs were added to a workforce estisted at about 10.3 million, the ITAA said. Hiring rates likely will remain at a "historic low" for the rest of the year, it added.

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MORADUM: Oracle Database Users' Interest in Linux Grows

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AY MARC L SONGING

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BETTER MANAGEMENT Oracle last week detailed plans to appraise ds database management books

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Canadian Privacy Law **Deadline Approaching**

U.S. companies must comply by first of the year

BY JAIKUMAR VIJAVAN The clock is winding down for U.S. companies that exchange data with other businesses and subsidiaries in Canada to comply with a law providing broad privacy protections for Canadian citizens

Beginning Jan. J. 2004, all companies that collect, use or disclose personal information about Canadian citizens during the course of commercial activities will have to comply with Canada's Personal Information Protection and Elec-

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lect data in Canada and then transfer it out of the country. unless the transfer carries with it the same level of protection that's required in Canada, Rasch said

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Division Over Web Services Standards Work Stirs Debate

IBM, Microsoft choose OASIS over W3C

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Oracle Corp., which cochairs the W3C's choreography working group, said it has worked hard — to date, to no avail — to encourage IBM and Microsoft to bring BPEL4WS to the W3C.

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Commercial Potential
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grid approaches will be widely adopted. "I believe the future will be networked-based computing," he said. "The days of one application owning a box...

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Business Process
Accurtion Language
For Web Services

April 2003
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Minimers include

takes an active role in standards work as the director of dynamic e-business technologies at IBM, said her company won't participate in both the OASIS and WSC groups be-Caltoe its "first focus is on BPEL" She didn't rule out the possibility that the decision

could be revisited, however. Norsworthy added that it will take hard work to make sure there is a single standard that every vendor implements, and she noted that BEA, SAR. Oracle and other companies will participate in both the

OASIS and W3C groups that deal with the topic. "They're definitely putting the burden on someone else to fix the problem they're creat-

fix the problem they're creating," said Eric Newcomer, chief technology officer at Iona Technologies PLC in Dublin. Newcomer, who serves as editor of the W3C's Web ser-

editor of the W3C's Web services architecture working group, said his company is "definitely disappointed about this sign of fragmentation in the community."

He said threats of divergence have surfaced before, but this marks the first time an "explicitly overlapping" charter was set up in an area where a working group was already established. §

RRIFFS

Oracle Patches DB Security Hole

Oracle Corp. released a software patch for a security valentability that effects its Oraclelli and Oraclelli and oraclelli and oraclelli and as the buffer overflow flaw to comparemise data or take control canvers, the compare said. Systems would have to be commetted effectly to the internet without finewall protection to be effectly in the compare said.

Microsoft Issues Security Guides

Microsoft Corp. released a guide thet's designed to help systems administrators secure computer running its new Windows Server 2003 operating system. The

2003 operating system. The company also released a similar document for Windows 2000. The guides provide instructions on how to securely set up the two operating systems and mitigate various attacks, Microsoft officials said. Both can be down loaded from the company's

IBM Denies SCO's Charges

in a filling submitted to the U.S. District Court in Utah, EMM denied trade-secret their allegations trade-secret their allegations todged against it in March by The SCO Group, EMM said it "has not everaged in any wrengdoing" or breached its Utah technology ir-consing contract with SCO. Lindwidth in Italians and SCO claimed in its lawset that EMM was file-pady utang Units code as part of limit is meant with scoles.

Server Sales Rise, Handhelds Decline

Worldwide sorver shipments rose 10% year over year in the first quarter, reaching a total of 1.2 million systems, according to Dataquest line. But Sen Josebased Dataquest said shipments of handheld devices tell 17% is the marrier to lose tell 17% in the marrier to 2.6 million units. MARK HALL • ON THE MARK

Storage Vendors' Wild West Mentality

... is working against users interests when it comes to interoperability standards, rails Jon William Toigo, consultant, author, columnist and, starting tomorrow, founder and acting chairman of the Data Maragement Institute (DMI). Efforts by groups like the Storage Networking Industry, Association to create workable standards are hampered by wendors constantly taking potabods at each other for competitive advantage, which is why the DMI is needed, he arruses. Toole saws his ground

woo't accept vendors as members, "although if they want to subscribe to a oewsletter or buy a white paper. I doo't care." The DMI will also evaluate vendor interoperability claims by testing their gear inside user data centers, then publish the results, Toigo saws. He believes

nan the results, Tolgo se those published results will likely bring on vandor lawsufts, which is why he has located he DMI in his hometown of Dunedin, Fla. Florida, he says, has an antinuisance-lawsuit statute, which should shield him from vendors! lawsers!

from vendors' lawyers. The commute isn't so bad, either, a Tony Barbagallo, VP of worldwide marketing for backup software provider Dantz Development Corp. in Oriads, Calif., agrees that the DMI confronts "a buge issue in storage resource management." But the thinks its charter won't affect his end of the storage industry, where operating system monopolies — uh, that is, OS standards — matter most. "We follow the APIs," he says. That's why tomorrow the company will release Dantz Retrospect 6.5 for Microsoft Windows. The upgrade backs up files faster because it streams

multiple backup sessions to multiple tapes simultaneously. It's designed to back up literasion of the literature of the mullous level and to be fully compatible with the .Net functions in Windows Server 2020. 8 speaking of .Net brings to mind Web services and how they's catching on - abolt, is made using that with more complex services.

in small ways first with more complex services coming in time. That's the strategy of Wayne Aiello, VP of e-business services at Corporate Express Inc. The Broomfield, Colo, office products company handles about 30,000 online orders per day. While individual orders are pretty small, only about \$150, they add up to more than \$1 billion a year for the company. Aidlo doesn't think ED is "less capable than XML," but all the RBB action between Corporate Express and its customers is in emerging Web services. Initially, Corporate Express leaned on its integrator, The Ultimate Software Consultations and the services and the services are services and the services are services. The services are services are services are services are services and the services are services.

tegrator, The Ultimate Software Consultants in Lombard. IIL to set un XMI based data exchanges between its Oracle back-end systems and the 25 different customer applications. Now, after some intensive training. Ajello's team is integrating eight to 10 companies per month on its own. The next phase for Corporate Express will include SOAP interactions that will enable customers to generate purchase orders from their systems based oo data coming from Corporate Express. # As Web services-based applications get more complex, tools such as Ultim Web Services, which will be released today as part of the Ultimus Workflow Suite, will become all the rage. But Ultimus Inc.'s CEO, Rashid Khan, thinks Web services "will take another two to five wars to really catch on." Still, the Corv. N.C., vendor is shipping its new tool now

with advanced business process manage-

ment features and says the software runs

on any Net-canable Windows server.

• Onc of the few bright spots in the dis firm saturbase today is W-Fi. (See Special Report, page 22) That's why InfoVista Report, page 22) That's why InfoVista Report, page 22) That's why InfoVista Oranj in New York will release on May 15 the VistaDiscovery module for its VistaDiscovery Developed to the VistaDiscovery of the VistaDiscovery of the VistaDiscovery of the VistaDiscovery VistaDiscover

work affect his end of

High-Tech CEOs Confront New Reality

Works ADMINISTRATE CONFRONT OF THE PROPERTY IN A MARKET TO A MARK

acquire new products rather than enduring the risk and time to build everything. He said that although some internal development is still being done, the focus is on acquiring proven products.

proven products.
John Fish, CBO of Chicago-based Hubbard One, said his company doesn't view its bottom line as a target. 'In any economic climate, we believe the focus must be on your customers,' he said. "We operate carefully, and we focus on our clients. That simple strategy has worked wonders for us." B



BY LINDA ROSENGRANCE The high-rec's industry is facing a new reality of stiff competition, economic uncertainty and global instability, all of which have CEOs zero-shift in the marketolace has which in the marketolace has

ing in on the bottom line, according to a survey being released tomorrow.

The survey, conducted during the first quarter by the Technology, Media & Teleundervalued assext, exchnol-

In a survey, conducted during the first quarter by the Technology, Media & Telecommunications Group of San Jose-based Deloitte & Touche LLP, was directed at CEOs of the 500 fastest-growthen techted Son Santon Sant berta. The trick, he said, is to do it now while the competition is either struggling or waiting for change. McDanald said his com-

pany's primary efforts to deal with this new reality include reducing senior management staff, narrowing research and development efforts, improving cash management and optimizing production. Buts Hawkins CEC of

Paragon Networks in Brookfield, Conn., said one of the

ROBUST OBJECT DATABASE HIGH PERFORMANCE SQL MULTIDIMENSIONAL ACCESS

Our <u>post-relational</u> database. The end of object-relational mapping.

For your next generation of applications, move to the next generation of database technology: Caché, the post-relational database.

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Because Caché's architecture is a multidimensional structure, applications built on it are massively scalable and lightning-fast.

Plus, no mapping is required between object, relational, and multidimensional views of data. This means huge savings in both development and processing time. And, Caché-based applications don't require frequent database administration or hardware and middleware upgrades. More than just a database system, Caché incorporates a powerful Web application development environment that dramatically reduces the time to build and modify applications.

The reliability of Caché is proven every day in The or-death applications at hundreds of the largest hospitals. Caché is so reliable, it's the world's leading database in healthcare – and it powers enterprise applications in financial services, government and many other sectors.

We are InterSystems, a specialist in database technology for 25 years. We provide 24x7 support to four million users in 88 countries. Caché is available

for Windows, OpenVMS, Mac OS X, Linux and major UNIX platforms. LL CACHÉ

CA Joins Push to Support On-Demand Computing

Unicenter tools the latest to enter fray

BY MATT HAMBLEN

OMPUTER Associates International Inc last week grouped I together six Unionter management software tools in a bid to give users on-demand computing capabilities without requiring them to make expensive upgrades to IT infrastructures At the Networld-Interop

conference here CA announced two new products and four upgraded ones that it said can support on-demand, or autonomic, computing applications. Companies can buy the tools separately and use them to designate servers and applications and reallocate computing resources as business needs change, CA said. CA is the latest in a strine of vendors to offer on-demand technology, But CEO Saniay Rumar said the Unicenter tools will work with systems from a variety of other yendoes no more won't have to tear out existing hardware to add on-demand capabilities. CSX Technology Inc. wants to eliminate some of the hundreds of servers it has installed at facilities throughout the U.S., partly because the systems are hard to provision,

said Cynthia Luman, vice Jacksonville. Fla. based IT division of CSX Corp In addition, many of the servers are used at only 195, of their processing capacity. Luman said. But some systems

PRODUCT NEWS

CA's products, wall our Web site OuickLink a3130

Fast switches: No vendors amounced 10 Goabit Ethernel switches at Nei OsickLink 38174

running Oracle financial upplications are commonly over burdened, resultancin "assonizing delays, like two hours to order a pad of paper," she added. CSX officials hope the Unicenter tools will let them allocate resources more evenly across different servers and lower the number of systems needed. Luman said.

Increasing Efficiency

AXA Group, a Paris-based financial services conglomerate. is looking at using CA's tools to manage a complex IT environment that supports various operating companies. Charlie Carnoll, a senior vice provident at the company's AXA Tech division, said the software should let AXA bill individual business units for their system usage instead of just prograping IT costs across all operations, "It would be payby-the-drink," he said. Another new function is decient desktop PC upgrades, a capability that the Walter Reed Army Medical Center in Washington is evaluating In some cases. Walter Reed needs to apgrade 1,200 PCs in three days. Management tools that can track the software configurations on contense and centrally distribute new ones. would simplify the upgrades.

said leffrey Goldberg, a semon management specialist at Washington-based Managerment Solutions & Systems Inc., which does contract work for Walter Reed.

The market for on-demand computing software is heating up, said Rick Sturm, an analyst at Enterprise Management Associates Inc. in Boulder Colo. Other vendors with autonum ic computing initiatives include IRM Howlets Packand Co., Microsoft Corp. and Sun Microsystems Inc. But CA should have an advantage because its tools deal with a

Why not ma ket them as a unified suite? They're sold as separate products so customers can license one or wider range of issues and are more. We decided to sell sepa hardware-neutral, Sturm said, 1

Gupta Says 'Optimal Utilization' Of Resources Goal of New Tools



What is new about these Uni

CA define on-demand com-

outing? Really, one of the but

customers have large numbers

of servers that are undenutifized

That means there's tremendous

poportunity if work can be done

What the six products work to

gether to do is identify and keep

track of resources at any given

point in time.

to use those servers better.

issues that comes up is that

nter tools, and how does

technology officer spoke with Comput-Matt Hamblen at N+I vendor's on computing strategy

is the software really selfhealing? When a server fails we try to bring it (back) online. and if we can't, the software

will automatically afocate a different server to do the work But it's more than self-healing It's cotmal utilization of networks and systems Are you late with on-

rate products within I locunter

two years ago, and it has

worked well. But all three

pieces work well together

pared with IBM and other vendors? If you want to talk about the rhetoric, we're delirately late with the rhetonc but first with real products. We made a conscious decision we would not talk about autonomic computing until the day we had

READ MORE ONLINE For an expanded version of this interview, hard to our Winh site.

Borland to Launch Tools for Microsoft's .Net Framework

Developers will gain new options for building applications designed to run on Microsoft Corp.'s .Net Framework and connecting those applications tu systems in lava environments when Borland Software Curp. ships new products The Scotts Valley, Calif.-

hased software maker temorrow plans to announce its Cit. Builder integrated development environment, which is intended to let developers make use of the .Net Framework's class libraries

The Borland tool, due this summer, will feature designdriven development capabilities and native support for databases from Microsoft, Or-

acle Corp. and IBM, as well as Borland's own InterBase Also tomorrow: Borland will announce a new product called laneva that's designed enable client- and serverbased anotications written for Microsoft's Net Framework to

> PRICE TAG C# Builder

integrate with back-office systems through the Internet Inter-ORB Protocol (HOP) Due in June, Janeva is based on J2EE and Common Object Recurse Broker Architecture (CORBA) technologies. Boz Elloy, vice president and general manager of Bor-

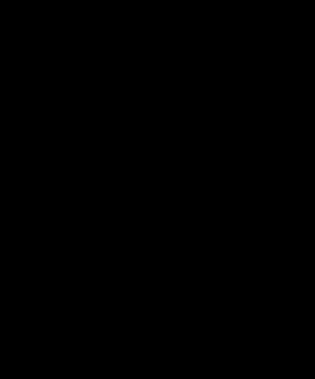
land's enterprise business unit, said the difference between using Janeva and using Web services or bridge technology is that laneva requires. no additional investment.

"We want to make sure we're not requiring. Net developers to use any new technolney," he said, "We also don't want to require any modifications to back-end logic

Thomas Murphy, an analyst at Stamford, Conn.-based Meta Group Inc., added that the HOP option may be better when performance is an issue He also said taneva will be important for users with existing

CORBA investments. lancya will support all languages that run on Microsoft's Net Framework, including C#. Iff Visual Basic Net and Delphi, according to Borland. Simon Thornhill, vice president and general manager of Borland's Net business unit said the development aspects of laneva will be incorporated

into C# Builder. The product will provide some support for Visual Basic Net, and Borland plans to add other language in the future, said Thornhill. Borland will also announce tomorrow Enterprise Server. Team Edition, a J2EE deployment platform for small and midsize businesses and departments in large companies. said Elloy. Due in early lune. it's priced at \$1,995 per CPU.



CA Joins Push to Support **On-Demand Computing**

Unicenter tools the latest to enter fray

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DUCT NEWS

CA's on-domand tools: For a chart lesing CA's products, worl our Web site: Ordeblish a2120

thes: Two vendors announced met switches at N-1

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TPC Top TPC-C Performance Results for Non-Clustered Systems let's look into this -56

The facts tell a compelling story, Microsoft SQL between 20000 is the new worldwide leader in scale or service of formacce, achieving the top two rankings in the steel SQL between tests. To learn how SQL Service of the steel ste

Microsoft

IBM Readies Storage Virtualization Tools

SAN appliance due in July, Storage Tank file server technology in December

1881 last week said it plans to ship this summer its first storage-area network (SAN) virtualizadata and to add by year's end amother product, based on its Storage Tank technology, that will provide a common file

system for multivendor disk The TotalStorage SAN File her will combine the Storage Timb sirtualization noftware with specialized Linux-based versions of the company's xSeries servers, IBM said in will also release a development specification that will make it possible for other vendors to link storage subsystems on application servery to the SAN File System

IBM detailed a three-phase plan for delivering storage virmalization technology, starting with an appliance that will initially support only its own disk arrays (see box). But the Storage Tank-based device is the centerpiece of the virtual-

ization strategy. A Long Wait

Brian Swick, supervisor of storage administration at The Resence Group Inc., a health maintenance organization in Portland Ore, said he has been waiting for Stnrage Tank for about three years. Sweek said he hopes the technology can help him better utilize disk space and reduce reverall costs on his 125TB SAN, which is split equally between IBM

and EMC Corp. arrays. Currently, Swick uses half of the capacity on his EMC Clariion arrays for primary storage and the other half to back un-Regence Group's Sybuse Inc. databases, With Storage

Trade's shaped file system Swick said, he could use IBM's Tivoli Storage Manager softwate to directly archive data on tones, eliminating the need for the disk-based backups. On the other hand, lack

Malinsky, director of operational technology for the city of Boston, said he has little use for virtualization technology because he likes to assign specific disk arrays to specific applications. That makes for a "much cleaner" storage archipecture, said Malinsky, who FMC Symmetrix arrays. IBM has been talking up

Storage Tank for the past four years, saying the SAN-based file system is designed to enable multiple application servers to access and share files in a single name space across multiple disk arrays

More Work Needed

But famic Graener an analysi at The Yankee Group in Boston, said IBM needs to take several more steps before it can claim to offer a wellrounded set of SAN virtualization products. For example, the company must get its.

IBM's Virtualization Rollout Plan

JULY A Linux-based SAN volume controller that's initial ly designed to pool storage casacity on the company's Shark and FAStT disk arrays

AUGUST A packaged system that combines the volume con-troller with an B3TB FAStT600 array and redundant Fibre DECEMBER A Linux-based system that uses IBM's Stor age Tank virtualization soft-

ware to centrally manage for across reultivender SAMs

block-level virtualization soft ware to work on rival arrays. and make the technology perilable on SAN cuitcher Growner said

EMC Plans Windows-based Storage

EMC Corp. last week announced licensing agreements with Microsoft Corp. that will enable the storage vendor's first foray into the market for low-end network-attached storage (NAS) devices.

EMC said it plans to run Microsoft's Windows Powered NAS software on its Clariion CX midrange disk arrays. An initial product the NetWin 200, will be based on the entry-level Clariton CX200 handware and is due in October. It will be priced from \$50,000 to \$130,000 and store between LITB and 4.4TB of data

In comparison, Hopkinton, Mass,-based EMC charges a starting price of \$167000 for a II B model of its higher-end lerra NS600 storage device, Gelerra NS000 storage uevace, which uses NAS software the commiss developed internally. EMC also said it will use the

storage application programmine interfaces (APD built into Microsoft's Windows Server 2003 operating system to enable centralized manage ment of both the NetWin 200 and Celerra from a single con-

sole. In addition, EMC plans to integrate its ControlCenter storage management software with Windows-based systems via the Microsoft APIs.

in Framingham Mass, said the deal with Microsoft will let EMC users store NAS data on mainstream disk array bard. ware. They will also be able to manage both types of storage without baving to launch another set of tools," he added.

Jeff Cohen, C1O at discount airline letBlue Airways Corp. in Forest Hills, N.Y., said he's primarily interested in the API OTHER DEVELOPMENTS

tween FMC and Microsoft That could give IT workers at JetBlue a more unified view of the company's server and storage environment, be said. Fasier to Run

'Anytime you can consolidate management consoles into one view it makes things easier to run," Cohen noted. let-Blue is expanding its 15TB

storage-area network to include a third model of EMC's high-end Symmetrix array he said. Meanwhile, the airline is number Windows Course 2003 on about 250 of Hewlett-

Packard Co.'s ProLiant servers, plus Unisys Corp.'s bigh-end ES7000 systems. Since Microsoft released Windows Downered NAS two wars ago, IBM, HP and Dell Computer Corp. have all pushed to sell low-end appliances based on the software But until now. EMC had relied

on its own NAS technology. A spokesman for Dell. which resells EMC's Clariton arrays, said the computer maker doesn't plan to market

Brian Truskowski, general manager of IBAI's Storage Systems Group, said that by year's end, the new Total-Storage SAN Volume Controller appliance will be able to work across all disk arrays made by major vendors. The company eventually hopes to port the block-level virtualization code to switches made by Brocade Communication Systems Inc. or Cisco Systems Inc. for greater SAN flexibility. added Truskowski.

Swick said the switch support could bein save money for Regence Group by enabling him to buy low-cost disk drives and use them to support multiple applications. no matter what kind of arrays "The challenge we're run-

the systems initially used. ning into right now is that a particular (application) server can only be on IBM or FMC." Swick said #

the NetWin 200. But he added that the new FMC device shouldn't conflict with Dell's own PowerVault NAS product

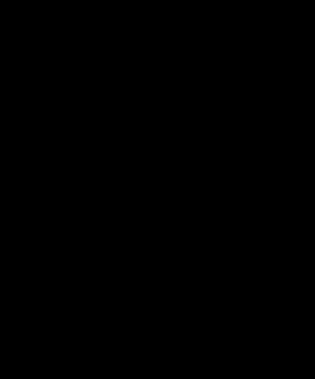
line, which starts at under \$25,000 and is primarily aimed at lower-end uses than the Marthin 200 is Windows Server 2003, which was officially released April 24, includes a number of new storage features, such as a Wirtual Dick Carries technol ony that provides storage ven-

dors with a set of APIs for in-

teroperating with servers running the operating system. Microsoft also announced its Volume Shadow Copy Service, which lets users create "snapshots" of information for data recovery purposes. In addition, it plans to support the iSCSI protocol, which lets users transmit data over IP networks. Zane Adam, product management and marketine director for Microsoft's

storage unit, said a free download of the iSCSI software is due next month. **BATA RECOVERY** Storage Technology Corp. is announcing a device for use in restoring corrupted data

QuickLink 38222



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In comparison, Hopkinton, Mass-based FMC charges a starting price of \$167,000 for a ITB model of its higher-end Celerra NS600 storage device, which uses NAS software the company developed internally. EMC also said it will use the storage application program-

ming interfaces (API) bulk into Microsoft's Windows Server 2003 operating system to enable centralized manage ment of both the Net Win 200 and Celerra from a single con-

sole. In addition, EMC plans to integrate its ControlCenter storage management software with Windows-based systems via the Microsoft APIs Bill North, an analyst at IDC

in Framingham Mass, said the deal with Microsoft will let EMC users store NAS data on mainstream disk array hardware. They will also be able to manage both types of storage without having to launch another set of tools," be added.

Inff Cohen C1O at discount airline JetBlue Airways Corp. in Forest Hills, N.Y., said he's primarily interested in the API

aspects of the autrement hetweeo EMC and Microsoft. That could give IT workers at JetBlue a more unified view of the company's server and storage environment, he said.

Fasier to Run

"Anytime you can consolidate management consoles into one view, it makes things easier to run," Cohen ooted, let-Blue is expanding its 15TB storage-area network to include a third model of FMC's high-end Symmetrix array, be said. Meanwhile, the airline is running Windows Server 2003 oo about 250 of Hewlett-

Packard Co's Prof. lant servers, plus Uoisys Corp.'s high-end ES7000 systems. Since Microsoft released Windows Powered NAS two years ago, IBM, HP and Deli Computer Corp. have all pushed to sell low-end appliances based on the software But until now, EMC had relied

on its own NAS technology. A spokesman for Dell. which resells FMC's Clariton arrays, said the computer maker doesn't plan to market the NetWin 200. But he added that the new EMC device shouldn't conflict with Dell's own PowerVault NAS product line, which starts at und \$25,000 and is primarily aimed at lower-end uses than the New Win 2000 in

Windows Server 2003 which was officially releases April 24, includes a number of new storage features, such as a Virtual Disk Service technology that provides storage vendoes with a set of APIs for interoperating with servers running the operating system.

Microsoft also announced its Volume Shadow Copy Service, which lets users create "snapshots" of information for data recovery purposes. In addition, it plans to supr the ISCSI protocol, which lets users transmit data over IP networks. Zane Adam, prod uct management and marketing director for Microsoft's storage unit, said a free down-

load of the iSCSI software is due next month & DATA RECOVERY

Storage Technology Corp. is annou

The **JAKE YOUR** DWARE K HARDER

OFTENERE

IBM. HP Release Itanium 2 Systems

IRM released its first server based on Intel Corp.'a 64-bit um 2 processor. The eSe er x450 is designed for use in data analysis and technical corr pilcutions. It supports up to four CPUs and can pur ndows Server 2003 or Linux Prices start at \$25,099, Maan while, Howlett-Packard Co. ced two Itanium 2-h tations that run the 84-bit

Nortel, Redback

Settle Lawsuits fortel Hetworks Ltd. and Sar lose-based Redback Hetwork inc. have agreed to settle duelle wits that were filed in late 101 regarding five U.S. pater ld by Nortel. The settlement includes a patent cross-li ent under which Redi will pay Nortel an undisclosed

Ericsson to Slash Nearly 14,000 Jobs

Her posting a \$504 million first-quarter loss, LM Ericsees one Co. and to cut nearly 14,000 jobs by nber 2004. The Stock holm-based company said its workforce will strick from 61,000 people to 52,000 by the and of this year and then drop to 47,000 by the start of next year's fourth quarter.

Short Takes

VITRIA TECHNOLOGY INC., a Sun yvale, Calif.-based vendor of usiness-process integration sels, reported a \$20.7 million \$22.6 million. Vitris also said its stock faces possible delicting by Handaq.... San Diego-based PEREGRINE SYSTEMS INC. said it Red a new version of its prowith the U.S. Book

Disparate Views of IT Governance Spark Debate

centralization vs. decentralization BY THOMAS HOFFMAN

10s and consultants who took part in a panel discussion last week about the best way to develop and foster IT governance models were

deeply divided over which path companies should take. IT governance - a methodology for keeping technology spending and labor costs under control - has become a hot topic among CIOs and IT managers in recent months. Interest has largely been driven by the increased emphasis on overall corporate governance in the wake of the Foron scandal and the emergence of more stringent accounting requirements, as well as the con-

tinuing cost pressures IT leaders are facing But there is no cookie-cutter approach to IT governance, said Roh Austin, a fellow at Cutter Consortium in Arlineton, Mass., and a professor at Harvard Business School. Austin was one of four panelists who debated IT gover-

nance issues at Cutter's Summit 2003 conference here Lynne Ellyn, CIO at DTE Energy Co. in Detroit, backed up his point. "There are many companies that have effective IT governance models that I have no interest in." Filve said. an IT steering committee that includes Filty and various

Two years ago, DTE created business executives. Busines unit leaders at the diversified energy company decide which IT projects need to be launched, "and IT decides how they get done," she said.

GET INVOLVED

It took a full year for DTE's Panelists weigh IT IT steering committee "to work effectively together," Ellyn noted. But since the committee was formed. DTF's IT department has reduced its budget by 40% while increasing productivity and end-user satisfaction rates, she said.

> Facing Financial Pressure In the 18 months since Craig Fowler joined Corning Cable Systems as CIO, the Corning dropped by nearly 60% as a result of the telecommunica-

Inc. unit's annual revenue has tions industry bust. To reduce spending. Fowler has focused on centralizing IT functions at the Hickory N.C. based maker of fiber-optic and copper communications systems. "We think we can get more

said. Previously, each business unit had a dedicated IT oncanization "and did their own deals on PCs," he said. "By centralizing, we're trying to increase our IT buying leverage while helping us deter mine what (systems) we have in place." Thus far, Corning Cable has reduced both its IT

than half. Fowler added. Crishele Consulting in Mannology Council, said she supto managing IT. But she also ernance best practices taken from other companies. That

staff and IT budget by more Christine Davis, president of hattan Beach, Calif., and a fellow on Cutter's Business Techports a deceotralized approach championed the use of IT govpositioo drew sharp rebukes.

IT Governance Recommendations Include a steering commit of senior IT and busin atives to decide on companywish if orientes and investments.

Set up self-directed work teams made up of IT staffers and ess-unit liais age individual projects. · Establish boundaries that spe ify what kind of decisions the work teams can and can't make

 Form an architectural council that sets corporate IT standards, plus more targeted group such as an IT security council SOURCE CHRISTING DAVIS PRESIDEN

*Benchmarking, at best, will show you how well your competitors were performing the last time a benchmarking test was done," Ellyn said. "You have to have the courage to do something beyond best practices." D

Senior Execs Looking for **Business-savvy IT Managers**

Stress need for familiarity with business plans

BY LUCAS MEARIAN Business executives from a group of financial services firms last week shared a basic idea about how CIOs can deliver returns on IT projects: For starters, they said, IT managers have to be able to read an income statement

"Do you know where the revenue comes from? Do you know where expenses are generated? And do you understand you have to have mor of the first and less of the second?" asked George Fisher, executive vice president and chief administrative officer at New York-based Prudential

Securities Inc. Fisher and three other executives participated in a panel discussion about what they want to get from their IT de-

partments, as part of the National Investment Company Service Association's annual technology conference here. Most of the panelists said IT managers are expected to be an integral part of their business operations and, as such, should be as well versed in

business plans as they are in technology. When you have your major technology folks ... able to discuss in great detail and very accurately describe, de fine and discuss what the business challenges are to doing something, then you know

you're beginning to blend your We want to have [[]] functionality d ered as needed.

WILLIAM BRIDY, SENIOR DIRECTOR MERRILL LYNCH FINANCIAL DATA

reanization," said William Bridy, a senior director at New York-based Merrill Lynch Financial Data Services Inc. Bridy and other participants also said they have bid farewell to the practice of funding long-term IT projects. Now they expect quarterly progress reports on projects and want to see tangible re-

turns on investment in a maximum of 18 months. "We want to have functionlity delivered as needed." Bridy said. "If it's a loogerterm initiative, let's break it down into manageable, controllable and discrete chunks." Fisher said he advocates that most IT projects should pay for themselves within a year. "A lot of people put out multiyear projects, and then a couple of years later, nobody knocks on their door and asks them. 'Did it work?' " he noted On the other hand, Bridy said he has found that most IT problems or project failures can be traced back to business users not clearly defining their

goals. But neither he nor the

issue further B

other panelists discussed that

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Group Touts Vermont as Outsourcing Alternative

Wages higher than India's, but lower than in U.S. cities

BY PATRICK THIRDDEAU NFORMATION technology consultant Seamus Walsh was working in lower Manhattan on Sept. 11. 2001. What happened on that day prompted him to move his family to the relative tranquili-

ty of Vermont Now based in South Burlington. Walsh is organizing a consortium of independent IT firms and consultants to try to convince the hig-city firms he left behind that bucolic Vermost is a wishle alternative to countries oversess for soft-

ware development Vermont's IT labor rates at \$35 to \$50 per hour, are two to two and half times the hourly rates in India. But they're lower than the rates in U.S. urban areas, where IT labor costs \$80 or more per hour Walsh said. The idea of attracting IT

work to rural areas makes

Continued from page 1 Offshore Coders Corp. Chief Security Officer

Mary Ann Davidson, one audi ence member said that it's *ironic that the countries the software industry trusts the least with binary code are the places where source-code development is being sent."

Davidson acknowledged that Oracle, which sells its software to all of the major U.S. intelligence agencies. does outsource some of its development work to companies in India and China However, "we give read access, not write privileges, to developers in India," she said. "And for the work done in China, it's quality control, and they do not need source-code access to do that."

cantly lower than those in metropolitan areas and if there are enough workers with the right skills, said Rita Terdi-

man, an outsourcing analyst at Gartner Inc. in Stamford. Conn. Terdiman said she believes that initiatives like the one in Vermont will spring up in other parts of the country "I think you are going to absolutely see a trend toward

that" she said The biggest problem facing Vermont may be just across the border: Canada's favorable

currency exchange rate. Richard Nolle, vice president of systems at Reinsurance Group of America Inc., said the idea of lower-cost areas in the U.S. developing into alternative development centers sounds "remotely possible." But he said it will be difficult for U.S. competitors

to overcome the Canadian exchange rose Nolle's Chesterfield, Mo. based company outsources application development work in

Although Davidson acknowledged that there is "a national security issue" involved in moving development work overseas the said there is also no guarantee that a worker who is a 115 citizen won't intentionally harm

source code. The economic situation to day is such that "you can't build these products without non-U.S. citizens," said David-

✓ I Like it or not, our national secrets are already being preserved by people who [aren't] U.S. citizens.

MARY ANN DAVIDSON. CSD. ORACLE CORP.

its use of workers in that country. The exchange rate saves the U.S. company ap proximately 30%, Nolle said

CenterBeam Inc., a Santa Clara, Calif.-based company that manages computing resources for small and midsize companies, intends to open a major center in Saint John. New Brunswick, later this year CEO Keyin Francis said he can hire three Microsoft certified engineers in Canada for roughly the cost of one in the IIS

But one Vermont outfit is drawing development work from urban customers. A notfor-profit affiliated with a Burlington-based college, eSolutions@ChamplainCollege has eight employees who offer high quality at rates that are roughly 25% lower than in urban areas, said David Binch, the company's director.

Burlington is also trying to overcome telecommunications infrastructure disadvantages faced by many locations outside of large metropolitan areas. The city has installed

more than 18 miles of fiber that can support 100Mbit/sec. connections to link about 40 sites, including schools and municipal buildings. "There is no question that first-class telecom is a significant factor in location decisions," said Timothy Nulty, head of Burlington's telecommunications project,

Meanwhile, in New Jersey

son. "Whether you like it or not, our national secrets are already being preserved by people who built these parts of the core infrastructure, and they're not U.S. citizens."

Assessing Risks Tim McKnight, chief information assurance officer at Los Angeles-based Northrup Grumman Corp. and a former security officer at Cisco Sys-

tems Inc., said companies must put in place a verificat and auditing process. And he said that effort will be costly. "At Cisco, we had teams that would go overseas and verify the people that were there.

monitor their access to file servers and source-code servers and do risk assessments," said McKnight. "It is very difficult to truly know who these people are. It can be done, [but] you really need buy-in from the top of the cor-

closing session of the conference indicated that the majority of attendees doubted the ability or willingness of software companies to conduct proper background investigations of foreign software coders working overseas.

That's not surprising, given that few companies in the U.S. conduct background investigations on IT personnel, said lovce Brocaglia, CEO of Alta Associates Inc. a Flemineton. N.J.-based executive search firm. *I'm surprised at how few of my clients actually do background checks on their information security professionals," she said. "At most they require me to do a reference check." b

SARS Affects Travel but Not Outsourcina

An IT outsourcing conference scheduled to be held in Shen

in June has been postponed. reschedule in October, K's a d ract consequence of the SARS Assun economies but otherwis rs to be having little im

The outbreak of SARS, or se have hurt earnings posted re-Inc. said lest week, But Gert said sarrings may have also been affected by rapeo appre tion, increasing saleries and

U.S.-bened outcourcers said the impact of SARS is limited. It ting travel, with to But Chine, the cou

clogy Solutions Corp., a A show of hands during the 5 remains a wild cord, he

early Thillies

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a Sun Fire V490 volution. To see complete text exists, go to waved at contingingstats.

There's lists, if any, obtains Migrating from UNIX to a standard board soleton bears 100. The real questions are "they does if perform?", "blow much will it lever 100" and "Med does but mit b" Well, when you regist to spen contraded, remember this Deli gives you beth mind-banding performance and organization depender, as a 100 so small poul med a microscope to find it. And the entire soleton is banded by enterprise and ATV arrows and approximation.

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HIPAA Could Hamper Medical Research

New federal privacy guidelines are making it tougher for medical researchers to access large amounts of patient data — and some researchers fear that could jeopardize studies of drug safety, medical devices and how to better predict and prevent disease.

"I think some projects are going to be much harder to do," said Dr. David Korn, a senior vice president at the Association of American Medical Colleges in Washington. Others simply won't be possible, be predicted. The reason is HIPAA, the Health In-

surance Portability and Accountability
Act. Designed to give individuals more control over
their personal medical information. HIPAA explicitly
outlines how medical records can be given to third parties and
carries stiff person to third parties and
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"Most of what HIPAA expects is good common-sense management... [but] it does introduce additional levcls of complexity," said Stephanic Recl, CIO and vice provost for IT at Johns Hopkins University in Baltimore. "I don't think the HIPAA legislation intended to do harm to academic meditended to do harm to academic medi-

cine, but it's complicated."
The stakes are high. Research projects that mine medical data have uncovered links between smoking, diet and lack of exercise and some diseases, as well as effective prevention strategies.

Major teaching hospitals like Johns Hopkins have systems in place to manage the process of making medical data available for research under HIPA-L in addition, some ongoing large-scale research efforts, such as the Framingham Heart Study in Massachusetts, rely on volunteer participants. Although such projects must comply with HIPA-L hey

are unlikely to be affected by a lack of access to data about additional patients. But researchers said they're con-

access to data about additional patients.
But researchers said they're concerned about the fate of new studies
that seek to examine large population
samples. Such studies typically rely oo
data not only from teaching hospitals,
but from community hospitals, medical clinics and other facilities as well.

ical clinics and other facilities as well. HIPAA does provide ways for smaller hospitals to share data with medical researchers. However, information that could be matched to individual patients must be stripped out unless permissions of waivers are granted. A

third option allows more limited information-stripping under special data-use agreements. Researchers worry that the HIPAA guidelines are so cumbersome, and the penal-

ties for violations so steep, that many community hospitals and clinics may decide it's safer and easier to say no. HIPAA has "increased the perceived risks" for smaller institutions to cooperate with researchers, said Dr. David Savitz, chairman of the epidemiology

department at the University of North Carolina at Chapel Hill's School of Public Health. Korn said widespread use of a stan-

dard HIPAA-compliant computerized record-keeping system could solve the problem, allowing records to be quickly "de-identified" and transmitted. But in fact, many medical records aren't computerized at all. "When you're talking about paper charts, it just is a fearsome hurdle to try to make

it de-identifiable," Korn said.

Preparing records for researchers
will be "wery burdensome" for hospirals, according to Lawrence Hughes,
regulatory counsel and director of
member relations at the American Hospital Association in Chicago, However,
Hughes saids be has yet to bear of hospital

Privacy Rules Pose Hurdles for Fund-Raising

IPAI may have an impact on medical research beyond potentially causing difficulties in acceptant of it. The law has offered. In the instance of the instance of the medical income of the instance of the ins

Previously, fund-reases at Johns Vicyvier could contact patients treated at the Wilner Eje Institute and set treen to contribute money to help fund research not writen problems, and Stephanie Real 20 and vice provent for IT at the univerity. We can't do that environ," are said. Under HPAA, medical institutions can no longer do Impresso fund maling without livel requesting permission from patients. In the contact flame about operatio departments or instituent contact. Otherwise, but glasters – a more expensive and also efficient way to manage a compression from the common difference to a places life Johns Hopters, Fleet each of patients—in the common difference to a place life Johns Hopters, Fleet each tals that are now reductant to give up information to researchers. But Korn said be has heard anecdotal reports of hospitals either refusing to turn over records or charging fees for the data.

The Association of American Medical Colleges hopes to compile a database so it can document the effect of HIPAA on research activities. "I think it's going to be a problem," he said. "I hope it won't." \$



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MARYFRAN IOHNSON

Worthy of Wireless

Y THE TIME I FINISHED reading the page proofs for our "Wireless at Work" special report (stories begin on page 27), I was ready to turn in my new Palm Tungsten W and confess the embarrassing truth: I'm

only impersonating a real user. Half the capabilities of this gorgeous gadget are wasted on me. I don't use it as a cell phone (got one already), and I don't even have the wireless connection enabled (too much e-mail would follow me around). Naturally, I use the calendar, address book, memo gad and calculator But Lam clearly not worthy of this much

cutting-edge technology. Fortunately for the wireless industry, overprovisioned editors are nobody's target market. In fact, reporter Bob Brewin found that for many companies, wireless is taking significant hold as a blue-collar technology "far removed from the world of executive BlackBerry pagers or airport lounge wireless LAN 'hot spots' " (page 38)

Once you look beyond the decafmocha-latte-sipping Starbucks crowd, the true impact of wireless shows up in successful workingclass applications serving repairtruck drivers from Sears and bulldozer operators at a Wyoming coal mine. At Todd Shipyards in Scattle. 66 supervisors are making far better use of wireless on their Palm devices than I ever will. They're managing the time records of 1,200 union workers, enabling them to see who's working on which job. The \$300,000 system had to work around the physical and geographic barriers presented by 44 acres full of metal structures, which required the installation of 33 access points, some with high-powered antennas

For our 15-page special report, we conducted an online survey a month ago, gathering feedback from 323

came from companies with more than 5000 employees and IT departments of fewer than 50. The majority (64%) consider wireless technulogy important to their business goals. And no wonder. The leading five business uses for wireless, our survey found, are mobile access to the enterprise sales

users. On average, they

force communication, data entry from the field, logistics support and factory-floor data entry. Somewhat heartening, though, is that 38% of the respondents said the

economic downturn has had no impact on their wireless rollouts. That kind of determined backing of any IT project is rare these days. It underscores how quickly the payback must he happening for many companies

The stumbling blocks of inadequate bandwidth and network availability don't appear to be stemming the steadily rising tide of companies moving forward with wireless projects. Even concerns about security aren't putting on the brakes. By the end of last year seven in 10 companies had adopted wireless technology, according to an IDC survey of more than 1,200 North American companies across 18 industries. About \$2.2 billion was spent in 2002 on wireless hardware, and that's expected to rise to \$3.9 billion by 2006. says research firm In-Stat/MDR. Also intriguing is how the smallbusiness frontier is becoming

crowded with wireless users these days (page 44). These second-generation adopters watched, learned and rolled their own, often in highly customized implementations.

"To make wireless cost effective the vendors have got to know an awful lot about their clients' business processes," says Gartner analysis Phillip Redman. "That's why you see so many adopters skipping a Microsoft or an IRM and oning instead to specialist (vendors) in areas like transportation and warehousing." Across so many industries, wire-

less is netting down to business. doing real work and proving itself worthy. Watching it all happen

Mom With OA Tools AN YOU PUT A PRICE on motherhood? Probably not. But if you're in the floral and gift business

> for a sizable piece of your revenue. you can easily put a price on the up time of the online systems that will be cetting pounded by well-intentioned last-minute shoppers That's part of the motivation be-

and count on Mother's Day

hind 1-800-Flowers.com's reliance on pre- and postproduction monitoring software There's an emerging trend to ereate quality assurance (QA) testing and monitoring scripts during the design

and construction phase of an IT project and then reuse them throughout the project's life cycle While developers are writing code. OA tesm members can build the load- and stress-test scripts to determine if the project is meeting

requirements set by business liaison groups. In the case of

Westbury, N.Y.-based 1-800-Flowers.com, which does more than 50% of its business online, this means gearing up for worst-case scenarios on Valer tine's Day and Mother's Day. As code is assembled, the QA team's scripts measure the interoperability of compopents as they're completed. Then they test the code in real time.

At 1-800-Flowers.com, software from Sunnyvale, Calif-based Mercury Interactive Corp. can push the system to simulate 150,000 simultaneous orders. Obviously, you'll need to creste your own metrics to test for but they should include the capture of live results, and you should also measure third-party performance if your site depends on outside services. It's no good having a service-level agreement with an Internet service provider if

there's no way to verify how it's doing. And while it's a no-brainer that I-800-Flowers.com needs to keep the



retail front door open for customers around the clock, the supplier connection is vital to all businesses - retail and wholesale

Can your business managers montor the call center experience? Do they have a good idea of what service reps go through?

Being able to monitor back-end and internal systems is equally vital, because it lets you know whether you're getting the most out of your hardware resources or if you're suffering from the ripple effects when applications are modified

As testing and monitoring software becomes more sophisticated - and unfortunately, more expensive - it very likely will be billed as a tool for business optimization. That remains to be seen, but reusing scripts and developing a more prominent role for OA could help you better understand whether you're even close to a return

on your IT investment. Without it, Mom might not get her flowers and continue to think of you as her priceless child 9 DAVID MOSCHELLA

Over the past five years hundreds of thousands of blogs have been developed. That the great majority of them are little more than

variity pages seen only by the creators' friends and family shouldn't turn us against the technology. Selfpublishing will eventually prove to be an important

Internet industry factor. But exactly how remains unclear. While there is considerable interest in cornorate usage, the current enthusiasm seems a bit exaggerated.

Large businesses already have the ability to regularly post content to the Web. and although blogs can make this even easier, their appeal would seem to be at least partially offset by real concerns regarding control and quality. The net increase in business empowerment is significant but relatively modest

The biggest benefits will continue to accrue for individuals and small businesses, who are increasingly being freed from the requirements of

satisfiest construction projects in-

clude extensive design and plan-

ning stages that ensure success.

passed in IT projects. But being

given the proper amount of time to

plan and design a system correctly

cess rates. Too often, project spor-

sors and IT managers pressure en-

gineers and programmers to move

on to subsequent stages in an el-

fort to report progress toward the

goal. Attempting to compensate for

previous failures during the coding

Mandolfo Associates, Omgha.

dill_matthew@hotmail.com

stage will result in cost overruns.

delaw and ultimately taken

Technical consultant

Matthew Dill

would dramatically improve suc-

These same steps are often by-

HTML and the expensive

Web professionals who understand it. Someday, all of us will non information to the Web as easily as we make PowerPoint presentations today. That's real progress. But seals the question is, Toward what end?

Many enthusiasts see individual blogs as an alternative to commercial Web content but thu still anpears unlikely. Maintaining a high-quality blog takes.

considerable time and therefore requires sustained motivation. Selfexpression and self-promotion have clearly motivated many, but they have obvious limitations. AndrewSullivancom has had some success soliciting voluntary financial contributions, but this is a rare example.

To me, the key question is whether individual blogging can be harnessed to create something larger than any one person could develop. Consider the analogy with open-source software. No individual could compete with powerful commercial software interests. Similarly, no individual blog is going to challenge Yahoo or The New York Times. But the idea of bringing together the focused, organized and peer reviewed work of knowledgeable individuals can be applied to

many fields, not just software. Perhaps this is what Google has in mond In this sense, blogs should be viewed as an important addition to the content marketplace. If commercial

sources provide most of what people need for free, the potential for blocs will remain limited. However should commercial content be withdrawn or made available only for a fee, the demand for alternatives will surely increase. In this sense, the blogosphere is likely to prove an effective longterm check on the power of commer cial content interests, to the erest benefit of us all 9

WANT OUR OPINION?

More columnests and links to archives of provious columns are on our Web site:

Blogs Bring Content Alternative

LOGS ARE HOT NEWS. In February, Google caused a stir by acquiring Pyra, creator of Blogger,com. In the past few months. many businesses have been experimenting with blogs as a way to make their Web sites and intranets seem more current and friendly. In the wider world, politically oriented weblogs such as AndrewSullivan.com have encested as important voices in the ongoing debate over Iraq. More poignantly, the Baghdad blooging of Salam Pax was a rare source of pre-

liberation Iraqi candor. Blogs deserve our attention because they're an important technological advancement. They make it possible for anyone with an Internet connection to quickly post text and images, and eventually audio and video, to the Web without any real rechnical knowledge. Blogs resemble e-mail in that they enable us to actively contribute to the Internet, as opposed to simply consuming it.

Managing Projects Is a Unique Challenge BASED ON MY EXPERIENCE. WHILE MICHAEL K MUROS of vance a project to a certain stage als for intelligent project manage-(read as "coding") are enormous. ment in his article, I take issue with To use Michael H Hugos' analogy his implication that IT can become of constructing a building ["Work a profession. It is a trade, a set of ing Hard Making the Same Misever-changing skills, and establishtakes Over and Over," QuickLink ing practical all-embracing stan-373071 no one would desarr of

dards would be impossible. asking an architect to show up one Porhaps you could establish day and just start building. Firen the working standards in the nampwer field of project management, but the term profession just doesn't fit management. Doctors, lawyers and asychologists all recort to self-

governing bodies, with behavior and ethical conduct parameters controlled by those bodies. Man agers don't, Programmers don't. Project managers don't either Alex Rounds Systems administrator, Shafer Electronics, Shafer, Minn

Missing the Point T SEEMS THAT Bruce Claffin still misses the point ["3Com CEO Explains Renewed Bid for Corporate Business," QuickLink 375401 The biogest basers, and our needs are

equipment that outstone many indistricts in the area and we when the outling edge. Claffin discounts our 3Com business as only 4% of the market, and he is apparently more then william to own that up I was one who invested in ATM technoison with a Cellaina 7000 com switch, an excellent choice when Token Ring was still rempent. I was out off with no upward migration.

goth and am looking to invest in a Catalyst 6500 soon Customer Intelby is appropriate that sharps at 30 pm. Michael & Mall Network administrator Beaufort County Community

College Washington N.C. ugunburke@yahoo.com Outsourcing's Price

WORK WITH overseas program-

mers frequently ("Outsourcing Growth Predicted, but Impact on Workers May Be Uneven * Oursir-Link 37459). Their knowledge, skill and work ethic are comparable to what you find in the U.S. but there are several barriers to working with them effectively - primarily, language differences, time zones and cation sector was one of 3Com's business/work process knowledge The language horner erodes own

time. The time-zone problem can be addressed by altering work. hours. But the business/work process knowledge nan isn'i ausaly tackled. In the meantime, we must essulate our business professionals.

from the nam of these harmore Lagree that the outsourcess trend will continue and that iT salanes will shrek. But when salanes accordach those of assistant managers at Burger King, we won't see many grads with computer science degrees. As a result, the U.S. will become totally

dependent on foreign sources Gene Burks IS planning specialist. Lake Jackson, Terros.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity They should be addressed to James Eckle, letters editor Computerworld PO Box 9171, 500 Old Connecticut Path, Framingham, Mess, 01701 Fax (508) 879-4843

E-mail letters@common include an address and phone number for immediate verification.

More letters on these and other topics are on our Web see

SeeBeyond CEO Explains Why Everything You Knew About EAI Has Just Changed

You're now saying 'Everything you know about anterprise integration has just changed.' How exactly has EAI avolved over the last several years?

EAI began as a way to integrate one application with another, enabling data integration and synchronization. It then evolved to include business to business integration and business process integration, allowing companies to design and manage multisep business processes. This was certainly an advance over the 'pupplers' 'populars' in a devance over the 'pupplers' in a popular and a processes and the passes when by automating manual processes and machine to:

However, this broader definition of EAI still falls short. Achieving the vision of the real-time enterprise is not simply a matter of automating business processes between systems, but also seamlessly inserting human interaction into the processes to handle exceptions. The true coroplexity of business processes, and the highest value, comes from handling exceptions well, and to end-users should be undistinguishable from other enterprise applications. What businesses need is a way to quickly assemble and deliver new enterprise-scale, enduser applications built by assembling existing business systems and functionality in new ways. This is where our latest offering. the SeeBeyond Integrated Composite Application Network (ICAN) Suite 5.0, comes into play.

Considering that integration costs are a significant part of software installations, do you see application development and integration coming together? If so, how?

Absolutely, Today, the IT infragrancing of

Absolutely. Today, the IT infrastructure of most organizations has grown into a morass of disjointed systems. Traditionally, application development and integration have been completely disparate functions. The advent of the integrated composite application network changes all that. It builds upon the foundations of



both application development and integration, adding the benefit of human brainpower in building composite applications. Automation is extended to encompass human tooth, allowing people and systems to interact synergistically and give business users a deep new look into their organization and its ecosystem.

This new newook is really a framework

for creating new, enterprise applications from existing ones. This framework is now possible thanks to the convergence of several technology and business trends, including: • the sufficient maturation of EAI; • the commoditization of application

servers,

existing IT assets.

- the adoption and maturation of open standards, including those for Web services.
 the widespread acceptance of portal
- the widespread acceptance of portal functionality;
 and the demand from customers that vendors solve business problems costeffectively, preferably by leveraging

What is SeeBeyond's technology strategy

he addressing this problem?

Our ICAN Size 55 provides the architecture and tools that, for the first time, caushed organizations to create new earlies organizations to create new earlies organizations to create new earlies organizations to stress the continued problems of the continued problems of the continued problems of the continued problems of ICAN 50 hold the promise to expenditure of ICAN 50 hold the promise of significantly reducing produce cycle organization of ICAN 50 hold the promise of significantly reducing produce cycle with the continued to the

We believe that the ICAN Suite 5.0 fulfills the long-awaited promise of middleware. It also is the latest milestone of SeeBeyonds 14-year vision of helping customers manage the flow of information across all systems, applications and enterprises on a elobal basis.

What is SeeBeyond's competitive advantage in this space?

First and foremost, we have the most open and comprehensive set of integration tools available in our new ICAN Suite 5.0. We have an installed base of more than 1,800 customers including leading Global 2000 companies; a 14-year history of success and a product suite written by a team whose serion members have been together for more than a decade. See Beyond knows what elaminess and application integration can do today, and what it must do in the future.

As a company, we have been an innovation leader since the birth of the application integration industry. We introduced the first commercially available integration broker in 1991; the first fally-distributed integration achieventure in 1999-and now, and with the ICAN 50, the first business integration platform built on an open framework, including a JEEE-compliant integration performs the first conposition generater based on an open, services-ordered architecture.

"SeeBeyond knows what eBusiness and application integration can do today, and what it must do in the future."

In business terms, the goal is to give managers a clear idea of what's happening across their organizations, and the flexibility to improve whatever needs to be improved.

Any final words of wisdom for CIOs when it comes to making an integration project succeed?

Tody, encryptic software equally husiness strategy. Them means COA bended be closely in far solutions that posses the same arributes as good business trategy—means. Placehality, responsiveness, and our-effectiveness. In the integration marker, COA should seek vandors who undersand that and who offer solutions that allow IT oppositioations to rech serve the madicional buriers of application to rech serve the madicional buriers of application the edoporates and integration, Islandy, with will enable COA to create their fature on the accessor for the past, without investing in a los of new, expensive and hand so use enchanding.



Beyond Integration



REAL-TIME BUSINESS ISN'T JUST ABOUT GETTING INFORMATION FASTER.

TY'S ABOUT MAKING SURE YOUR BUSINESS CAN TAKE ADVANTAGE OF IT.

In a true real-time business, everything moves fester, Your data is always where and when it's needed. You coordinate activities and automate progresses end to end. You enjoy greater visibility and understanding. And you have the ability to drive your business with new immediacy.

TROO Software preven integration solution anable real-time business. By unifying and confiniting your existing assets—people, processes and legacy systems—you can do more with what you kendy have. And do it bester, it's what we call The Fower of Mont. Out unbiased, independent approach and easily-deployed integration solutions can help you grow your business wow in it oday's difficult environment.

As the world's leading independent integration software provider, TIBCO has helped more than 2,000 companies take advantage of real-time business. Discover how you can put The Power of Now to work. Call 888-558-4226 or visit us at www.tibco.cem/cwc





HAL-THE IN ACTION DELTA AND THE

Dalta Air Lines partnered with TISCO to create the Dalta Nervous System, which connects Dalta's 13 box ness units and 30 databases, and handles more than 5

"The ability to share information with our employees and contenent in real-time, and to automate here we share it; has allowed us to transform our business,

Curtis Robbs, Dalta Air Lines

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W

Wireless Bets Down to Business

In the hands of pioneers, wireless technology is breaking new ground in key ecocomic sectors, with applications that range from the everyday to the extraordinary. Page 30 The Wireless LAN FAQ

Thinking of deploying a wireless LAN? Read these frequently asked ** questions to get tips for success. Page 42 Working-Class Wireless Wireless oow supports a wide range

of blue-collar applications, like the one that allows repair technicians to transmit data from customer sites to Sears' back-end systems, says Dave Sankey (right), Page 38

EDITOR'S NOTE

Mention wireless technology, and most folks think of BlackBerries retrieving e-mail or stock quotes, or those hyped wireless access points at Starbucks and air-

port lounges. But these days, wireless technology is expanding its job description to include some gritter applications. Lately, wireless has rolled up its sleeves and joined the working class.

and joined the working class. Service technicians now use it in their trucks to call up repair information while at a customer's bouse. Buildozer operators use it to get information on where to build the cext road. Police officers use it to catch crooks by monitoring mug shots, maps and

graphical data sent out from headquaters. Wireless technology has even made its way into some everyday places, as pioneering industries take core wrietes capabilities to new levels. Bring a garment into an RFID-enabled densiting room, and the color options and fabric information are displayed on a plasma screen. Or visit a wireless-enabled emergency room, where your doctor can call up your medical history on

a PDA from the hospital's data repository.
These new applications bring with them
exiting over possibilities that many of you
are eager to explore. Our reader poll (see
page 40) showed that 64% of respondents
consider wireless technology important to
their business peals.

their business goals. In the pages that follow, we take a look at cutting-edge wireless uses and hear from industry observers about which wireless vendors are making the grade for corporate TV. You'll find answers to frequeoty asked questions about wireless LAI setups and early and the control of the cont

Ellen Fanning is special projects editor at Computerworld. Contact her at ellen fanning@computerworld.com.



WIRELESS AT WORK

I AM A CISCO CATALYST 6500.



I AM A SNARLING PACK OF DOBERMANS.

I AM INTEGRATED SECURITY. I HAVETHE POWER TO PROTECT YOUR NETWORK FROM THE INSIDE, THE OUTSIDE AND FROM EVERYWHERE IN BETWEEN. I ALWAYS KNOW WHO IS ON THE GUEST LIST AND HAVE THE POWER TO DENY THOSE WHO AREN'T ON IT. I SNIFF OUT THREATS SO YOU CAN STAY PRODUCTIVE. I AM MORE THAN A CISCO CATALYST 6500.



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cleco.com/securitynow





ROM RETAIL STOREFRONTS to the military's front lines, wireless technology now permeates nearly every sector of the U.S. economy.

The technology has come a long way from simple bar-code reading with wireless PDAs. Today, tags affixed to retail garments taken into a dressing room can wirelessly signal a wall-mounted screen to display color choices and fabric information. College students can do research in the cafeteria instead of the library, and forklift

operators can save themselves hundreds of miles of travel in factories by receiving product requests from computers mounted on their vehicles.

By the end of 2002, seven out of 10 companies had adopted wireless technology, according to a survey of 1,251 U.S. and Canadian companies in 18 industries by IDC in Framingham, Mass. "Economics and technology are making wireless available to a lot more people," says Ken Dulaney, an analyst

at Gartner Inc. in Stamford, Conn. "We're seeing it increase in its capabilities. People know what it can do, and they're working on projects that make sense - updating them more into back-end systems.

Purchases of wireless hardware reached \$2.2 billion in 2002 and are expected to top \$3.9 billion by 2006, according to research firm In-Stat/MDR. Units sold will skyrocket from 18 million to 75 million in 2006, which suggests that the cost of deploying wireless will continue to fall To learn how wireless is being adapted to meet changing needs, we took a look at the most innovative uses of it in 10 sectors of the economy.

FDUCATION The Challenges of Being First



University was voted "Most Wired Campus" by the online publication Yahoo Internet Life for its pioneering use of wireless

access in more than 30 buildings. Today, five years after the university installed its first wireless LAN, administrators are looking to upgrade the system with new standards and faster

speeds, which will require 1,200 new access points for the 7,000 registered wireless devices on campus.

It's a problem facing many institu tions. Some 87% of schools and institutions surveyed by IDC now use wireless technology, and 90% say bandwidth and network availability issues top their list of technology challenges. Rough estimates of the cost of Carnegie Mellon's upgrade are about \$3 million, three times what the university has spent so far on wireless. What's more, funding isn't as plentiful as it was five years ago, says Chuck

Bartel, director of network services. But one simple truth has bumped the project up the priority list: "If you don't deploy it yourself, it will proba-bly set deployed by someone else, and in a manner you don't want," most likely by tech-sayyy students, Bartel says, Bartel is concerned that if students don't have the wireless access they need, they'll find cheap hardware at a local electronics store and bring it

onto campus. "If we haven't put the proper security in the mix, anybody can access university data." Bartel says. The combination of wireless access and tech-savvy students uncovers another truth - a network that's always available sometimes shouldn't be. "At times," says Bartel, "faculty doesn't want access to the Internet or instant messaging between students' - during tests, for example. But now that wireless is being embedded into lantons and handheld devices, "it's a little more problematic," he notes But don't expect this technology institution to step back from the bleeding edge anytime soon. Carnegie Mellon is developing new uses for its wireless network in handhelds, laptops, ro-

bots and wearable computers. Students in one graduate-level development course are working on in telligent agents embedded in bandheld devices that will offer weather reports. restaurant options and even the location of friends, based on the user's location. The university's robotics instituse is experimenting with collecting information by attaching wireless con ponents to robots. "Once you have the infrastructure in place," Bartel says, "the juices start flowing in terms of





en Time Is Money



Soon after launching its first wireless ering in 1998. Fidelity Investments realized that wireless subscribers were very attractive stomers. They have more assets, they're more final

cially active and more tech-savvy," says Joe Ferra, chief wireless officer. That appealing combination kee the Boston-based firm listening to its customers' demands for new wireless features and monitoring their use of every new function.

Today the company's wireless offer-ing, Fidelity Anywhere, lets 170,000 customers get real-time stock quotes. make after-hours trades, short-sell and, with phone-integrated BlackBerry handheids, call a Fidelity rep with the touch of a button. The firm also now lets customers manage their retirement accounts, charitable donations

and insurance needs wirelessly. While wireless capabilities expand, security issues remain an obstacle. "The level of security just isn't high enough yet" for many financial services functions to be deployed wire lessly, says Wai Sing Lee, an analyst at Prost & Sullivan in Toronto. Until Wireless Application Protocol 2.0 or ards come out, real innovation will be put on hold, he says.

Some two-thirds of the financial ser-

gy today, with about 20% of those users in the initial stages of a rollour according to IDC. What's more, 29% of financial services companies surveyed have or plan to provide online trading capabilities to their clients. Ferra says security remains a paramount concern, and Fidelity continues

vices industry uses wireless technolo-

to "look at what's out there" in terms of security standards. But right now it relies on encryption and authentication developed using the Handheld Device Markup Language.

The firm even chooses which functions will be offered on each type of device based on security concerns. browser capabilities and latency. "It would be very difficult for me to convince people at Fidelity to offer realtime quotes over a given device if we know the latency is 30 to 40 seconds. It's got to be a lot quicker than that," Ferra says, adding that those discrepancies are becoming less of an issue.

"I'm convinced this will become a predominant way that people conduct their business with us. These devices are convenient, more reasonably priced and easier to use than ever before."

ENERGY & CHEMICALS

Wireless Powers Sales Force, roductivity of Maintenance Crew



tives in the energy and chemicals industry, the upper echelons of Celanese Chemi cals Ltd. are fairly conservative, says Bill Schmitt, the

Like most execu-

director of e-business at Celanese. 'Anything that looks or smells like bleeding-edge technology makes us pretty nervous," he says.

But the \$3 billion chen was comfortable enough with handheld devices and wireless LANs by 2002 to adopt the technology primarily as a productivity tool for sales staff. Now the Dallas-based company is looking at wireless technology to speed mainte-

nance at its chemical plants. "When you run continuous production units, time is money," Schmitt says. When a pump goes down, for example, ince workers travel through football-field-size plants by foot or bicycle to inspect the problem and then travel back to the control room and see room to arrange for repairs -

Continued on page 34







examples? Windows XP Professional offers built-in audio and video-conferencing capabilities that make the whole experience easy and intuitive for your and serse. With the Send for Review feature, Office XP Professional for the control of the Send for Review feature, Office XP Professional for the control of the Sender Review feature, Office XP Professional for the control of the Sender Review feature, Office XP Professional Control of the Control of cycle, while automatically providing the correct tools for each reviewer and allowing changes to be easily merged back tota the original document. And finally, several new leatures make deployment easier than ever. For more bless, should reconstitute the control of the contro

WIRELESS GETS DOWN TO BUSINESS

Continued from page 31

which could take up to an hour, he says. In the future, employees will use Hewlett-Packard Co. Pocket PCs to report problems and arrange for repair equipment to be brought to the site. A

equipment to be brought to the site. A pilot test is planned for later in the year. Schmitt also wants to extend wireless capabilities globally to customers in China and Asia. But he acknowledges that the technology "isn't there yet." Europe and Asia were quick to adopt

Europe and Asia were quick to adopt mobile phones and Short Messaging Service messaging, he says, but "in wireless data, the U.S. is still ahead."

HEALTH CARE

Hands-off Technology in a Hands-on Business

As purses whisk a



critically injured patient into the emergency room at St. Vincent's Hospital in Birmingham, Ala, a physician grabs his PDA and with a few stylus strokes accesses the patient's medical history from the

hospital's vast clinical data repository. An admitting clerk scans the patient's insurance card and driver's license using a handheld device at the patient's bedside. After tests and surgery, caregivers will be able to access lab results, medication orders and surgery notes through wireless notebook computers or Pocket PCs that are synchronized with hospital systems for un-to-the-minora cavariary.

up-to-memmar accuracy.
These everyday uses of wireless represent just the beginning of St. Vincent's plans for the six-building bospital campus, part of Ascension Health Inc., an SR 9 billion health care provider based in St. Louis. The St. Vincent's wireless network is the largest such network in health care in



"The heart of health care is information," says GtO Jim Stettheimer. "When you can make information available anytime, anywhere, you're laying the groundwork for huge strides in quality and nation outcomes."

At least eight out of 10 hospitals regularly use wireless technology today, according to IDC. Health care workers "are in highly mobile environments where there's a

requirement to gain access to information," says Chris Kozup, an analyst at Mera Group Inc. in Stamford, Conn. The first phase of St. Vincent's projce, which cost \$16 million, included installing 167 Cisco Aironet 350 Series access points around the campus access points around the well with a light 2002 with \$5 seers, including physicians and admitting clarks who used Common Pino Pocket



PCs, Fujitsu Stylistic 3500 Tahlet PCs and some Dell and Compaq notebook computers using Cisco Aironet 350 network interface cards. By March 2003 the number of users had doubled

As part of a "total leap" into wireless. Stettheimer's team is pilotine wareless voice technology from Vocera Communications that allows clinicians to speak into badges worn on their lacels to contact co-workers.

Ultimately, 600 hospital workers, including doctors, nurses, physical therapists, transporters, social workers and pastoral staff, will send and receive information wirelessly using role-based security, which restricts the kinds of information these workers can access Return on insurtment is measured in terms of time saved and patient satisfaction. In the future, administrators will measure the time it takes to get a

medical order through the system. Stettheimer says the technology will succeed because physicians have been closely involved in designing and implementing the system. "That purs them in a position of ownership and investment in making sure that it works well." he says.

MANUFACTURING

The Shortest Distance Between

Two Points Is Wireless

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in silicon and fabrication technomes. these "motes" could eventually be the size of a grain of sand, though each would contain sensors, computing circents hidirectional wireless comm cations and a power supply Motes would eather scads of data run con putations and communicate that data using two-way hand radio between motes at distances up to 1,000 ft. Manufacturers are already experi-

detect everything from light to vibra-

menting with triangulation, which uses placed throughout a plant. The precise location of multimillion-dollar equipment that moves around the plant can be tracked using radio frequency identification (RFID) tags mounted on the coulpment. "This allows asset tracking," says Meta's Kozup, "That's a bit of a future application, but some are experimeoting."



This Season's Must-Have: An RFID Tag Retailers are old-

time users of wireless technology for communicating between the checkout counter and the back room and mobile point-of-sale terminals. But today's wireless technology can improve in ventory accuracy, fight fraud and in-

Forward-thinking retailers are venturing into RFID technology, chip-embedded tags that hold more information than a har code and don't require direct contact with a reading device.

"A good 25% of all major retailers have dabbled in RFID," says Bill Alten. eMarketing manager at Texas Instruments Inc.'s RFID Systems. But most are bolding off on full-blown implementations because of the poor econo my, confirment costs or complicated supply chains.

Readers mounted on display shelves in stores can survey item raes and send inventory data to back-end systems rather than relying on point-of-sale data or manual counts. In the stock room, a tagged box's contents can be identified without opening the box. At Prada's flagship store in New York, RFID-enabled dressing rooms

are equipped with plasma display screens. When a customer brings a gar ment into the room, the screen reads



the tag and displays information on the designer and choices of fabric and color; it even offers accessory ideas While retailers such as Wal-Mars Stores Inc. and Target Corp. have puloted RFID tags on boxes and pallets, retailers that manufacture their own clothing lines are experimenting with individual earment tags, "We felt that retailers who have a vertically integrated supply chain like Benetton or I. Crew or The Limited, who are manu facturing their own goods, would be the first to take advantage of item-level RFID," says Jim Crawford, an analyst at Forrester Research Inc. in Cambridge,

Mass. If retailers have control over the manufacturing facility, tags can be applied at the time of manufacture at no extra cost he adds But at 25 to 50 cents apiece, the cost

of individual tags is keeping item-level RFID at buy for many retailers "I foresee the use of RFID at the item level in five to seven years." Allen predicts. *I foresee more applications used for RFID for the carton and pallet level. We are not anywhere near being

able to provide retailers with a 5-cent or penny tag. The technology is just TRANSPORTATION

Cost is Still a Roadblock For Some Carriers



not there yet."

About one-third of the companies in the transportation industry used wireless technology at the beginning of

2002, according to IDC. The other two-thirds indicated that they planned to evaluate or implement the technology by the end of the year. Many are installing wireless fleettracking devices.

Nationwide trucking company TRL Inc. announced plans in February to convert its entire fleet of 600 trucks to Aether Systems Inc.'s MobileMax system for wireless tracking and messagine. The company has used integrated mobile communications in its fleet for nearly 10 years and recently decided to upgrade to a system that automatically switches between land-based and satellite communications without dry wer or dispatcher interpention

"It makes it easier to get the information necessary to dispatch and assign loads," said Mike Brown, vice prestdoot of sales and marketing for the transportation and logistics division at

Owings Mills, Md -based Aether, Pittstoo, Pa.-based TRL said the new system will help improve the productwity of its fleet and bolster customer service. But when it comes to wireless adoption, some industry executives say

cost is one of the biggest roadblocks. Customers are demanding that wireless providers take us to a much lower cost," but instead the industry is moving to expand offerings, says Dave Berry, vice president of Phoenix-based Swift Transportation Co. "We don't want to watch TV from our trucks; we want lower costs."

LOGISTICS

Getting It There Faster The logistics in-

dustry has embraced wireless

technology wholeheartedly for the past three years. Wireless LANs are used to man age large segments of the logistics chain, from container ports that handle bulk shipments of consumer goods to package delivery giants that track and manage worldwide shipments. Com-

petitors in these areas now use wireless innovations to gain business advantage Memphis-based FedEx Corp. ratcheted up the competition with Atlantahased United Parcel Service Inc. in February when it began deploying new handheld devices for its 40,000 FedEx Express couriers as part of a \$150 million technology investment. The company selected Motorola Inc. to develor the PowerPad handhelds, which use Microsoft Corp.'s Pocket PC operating system and automated courier dis-

patch, pickup and delivery operations FedEx picks up and delivers about 3.5 million packages a day, and the PowerPad was designed to save 10 seconds at each stop, according to Ken Pasley, the courier's director of wireless systems development. FedEx expects a complete rollout over 18 months.

thirds of all companies actively using the technology General Motors Corn's Cwlillac and Buick assembly plants mounted wireless computers from Symbol Technologies Inc. in Holtsville, N.Y., on forklifts so drivers can wirelessly collect and transmit data from the factory or ware-

house floor. The forklift operators can also receive work instructions and and updates without leaving their vehicles. The wireless network is expected to save \$1 million at one GM assembly plant, according to a company statement. Forklift traffic has declined by 400 miles each day. After nine months of wireless use, forklift operators now average 60 to 70 deliveries a day, double the number of deliveries they were making before the system went live.

In a few years, manufacturers may he able to catch product defects by sensing out-of-range vibrations in industrial equipment using "smart dust." Carnegie Mellon University's MEMS Laboratory is developing the devices, which are tiny wireless microelectromechanical sensors (MFMS) that can

WIRELESS GETS DOWN TO BUSINESS

ntinued from page 4

which could take up to an hour, he says. In the future, employees will use Hewkert-Sackard Co Pocket POs to report problems and arrange for repair equipment to be brought to the sate. A fully first is planned for later in the year.

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MANUFACTURING

The Shortest Distance Between Two Points Is Wireless



works well," he says.

Automotive and aerospace plants lead the manufacturing pack in wire less device use with about twothirds of all companies actively using the technology.

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Laboratory is developing the devices. which are tiny wireless macroelectromechanical sensors (MEMS) that can detect everything from fight to vibrations. Thanks to recent breakthroughs in silicon and fabrication techniques these 'motes' could eventually be the size of a grain of sand though each would contain sensors, computing circuits, bidirectional wireless communications and a power supply. Motes would gather seads of data run computations and communicate that data using two-way band radio between

motes at distances up to 1000 ir. Manufacturers are already experimenting with transpolation, which uses wireless access points strategically placed throughout a plant. The precise location of multimillion-dollar equipment that moves around the plant can be tracked using radio frequency identification (RFID) tags mounted on the equipment. This allows asset tracking," says Meta's Kozup. "That's a bit of a future application, but some are experimenting.

RETAIL

This Season's Must-Have An REID Tag



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"A good 25% of all major retailers have dabbled in REID" says Bill Allen cMarketing manager at Texas Instruments Inc.'s REID Systems. But most are holding off on full-blown imple-

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are equipped with plasma display screens. When a customer brings a gar ment into the room, the screen reads

the tag and displays information on the designer and choices of tibric and color it even offers accessory ideas

White retailers such as Wal-Mari Stores Inc. and Target Corp. have pilot ed RFID tags on boxes and pullets, retailers that manufacture their own clothang lines are experimentate with individual garinent tites "We felt that retailers who have a verm ally inverseed supply chain like Beneaton or 1 Crew or The Limited, who are many facturing their own goods, would be the first to take advantage of item-level REID," says Jim Crawford, an analyst at Forrester Research Inc. in Combridge Mass. If retailers have control over the

manufacturing facility, tags can be applied at the time of manufacture at no extra cost, he adds But at 25 to 50 cents opiece, the cost

of individual rags is keeping item-level. REID at his for many netailers "I foresee the use of RFID at the nem level in five to seven years." Allen predicts. "I foresee more applications

used for REID for the carton and valler wholeheartedly for the past three level. We are not anywhere near being able to provide retailers with a 5-cent

or penns tag. The technology is just TRANSPORTATION

Cost is Still a Roadblock



not there yet."

About one-third of the companies in the transportation industry used wireless technology at the beginning of 2002, according

to IDC. The other two-thirds indicated that they planned to evaluate or implement the technology by the end of the year. Many are installing wireless fleettracking devices

Nationwide trucking company TRL Inc. announced plans in February to convert its entire fleet of 600 trucks to

Arther Systems Inc. & Mobile May Say the The company has used time at med mobile communications in its flexition nearly 10 years and recently decided to upgrade to a system that automatically sateline communications without dri

It makes it caster to get the informaloads' and Mike Brown vice presi dem of sales and marketing for the transportation and logistics decision at

Owines Mills, Md-Fused Active Patiston Parbased LRI said the new man of its fleet and bolster customer service. But when it comes to wireless adoption some industry executives say

cost is one of the biggest roudblocks T ustomers are demanding that wireless providers take us to a much lower cost," but instead the industry is Berry, vice president of Phoenix-based Swift Transportation Co., We Jon 1 want to watch TV from our trucks, we

LOGISTICS



The logistics industry has entbraced wireless technology

swars. Wireless LANs are used to man are large segments of the logistics chain, from container ports that handle bulk shipments of consumer goods to package delivers grants that track and manage worldwade shipments. Lompetitors in these areas now use wireless

innovations to gain business advantage Memphis-based FedEx Lorp ratcheted up the competition with Atlantabased United Parcel Service Inc. in February whentit began deploying new handheld devices for its 40,000 Fedles Express couriers as part of a \$150 million technology investment. The company selected Motorola Inc. to develop the PowerPad handhelds, which use Microsoft Corn's Pocket IX operation eystem and intomated courses dis-

patch, pickup and delivery operations FedEx picks up and delivers about 3.5 million packages a day, and the PowerPad was designed to save 10 seconds at each stop, according to Ken Pasley, the courier's director of wire less systems development. FedEx expects a complete rollout over I8 months.

WIRELESS GETS DOWN TO BUSINESS

Continued from page 35
Unlike its current SuperTracker handhelds, also developed by Motorola, the new PowerPads can exchange data with FedEx's back-end systems, including its Web-based package-tracking applications, over AT&T

Wireless Services Inc.'s nationwide mobile data network. Craig Mathias, an analyst at Farpoint Group in Athland, Mass., called the rollout a psychological victory over UPS, which is planning a similar rollout for early this year, as well as other

GOVERNMENT

Fighting Terrorism With Wireles



hind the technology curve—are uncharacteristically bullish on wireless technology. For many, the moves are a reaction to terrorism threats and new bomeland security requirements. The Los Anneles Police Department

The Los Angeles Police Department (LAPD) plans to install high-bandwidth WLANs at its 27 police stations by July to send mug shots, maps and graphical data to police officers on the street. The LAPD will deploy 1,500 Pocket PC handheld computers made by Symbol Technologies, which will

include 802.116 WLAN cards.
Police departments in Baltimore and
Glendale, Calif, have also developed
interfaces between the WLAN radios
built into the Symbol handhelds and
the WAN-based radios used in police
cars. Officers can use handhelds as remote units connected to the WAN

while outside their vehicles.

The U.S. Department of Health and Human Services in March announced plans to test a wireless network operated by San Mateo, Calif-based ePocrates Inc. to transmit blockmontes baseline.

alerts to Palm OS-based handheld computers used by doctors across the country. Already, 250,000 doctors nationwide use ePocrates handhelds to determine the correct prescription and dosage for sick patients.

"Government is moving with the lwireless technology! curve," says Garner's Dukney. "The entire Congress has RIM BlackBerries for e-mail. They rely on it." On the state level, wireless use is fragmented because officials disagree on which departments have critical communications needs

that would require it, he says, Security and business concerns in New York have officials there considering putting wireless access points subway tunnies so people can talk when they're underground. "New York believes being connected is extremely important for the beath of its business especially since 9/L" Dellarey ares.

DEFENSE & MILITARY

Wireless on the Front Lines



On the battlefields of Iraq. Afghanistan and Southwest Asia, Army troops

have replaced the sneakernet used to requisition supplies and maintenance during the 1991 Persian Gulf War with wireless technology that can save time, money and maybe even lives. Now, instead of loading a floppy disk with logistics information, supply

with logistics information, supply chain reorder forms, mechanical parts orders and requisitions for website maintenance and then carrying it to base camp for processing, troops are using CAISI (pronounced "Casey"). He Army's Comba Service Support Automated Information Systems Interface. The technology went into the field in October 2002 and is now used by four of the Army's 10 divisions.

"It used to take a week or so to get these supplies commissioned and back to the troops," explains Maj. Salvatore Fiorella, assistant product manager. "CAISI increases the capability to order supplies by getting the wheels turning immediately, as soon as the

In one instance, CAISI saved a unit in Southwest Asia \$40,000 in hardware costs, the two weeks it would have taken to run wire, and hours of negotiations with the host country to get approval for laying down extra wire.

The system can transmit data about three to four miles, which has limited its use once troops venture deeper into enemy territory. But "with satellites linked to CAISI, that just brings it to the battlefield," Florella adds.

the battlefield," Florella adds.

The wireless system consists entirely of off-the-shelf hardware and soft-ware. Laptop computers in the field are physically connected to wireless modules, which are triple-encrypted using software from Fortress Tech-

nologies Inc. in Oldstram; Fla., even hough CAISTs use is restricted to "sensitive but unclassified" information. CAISIs is just one of the Army's efforts to have 802.11b wireless devices deployed in the field between 2008 and 2010, once all socurity issues have been districted. We have to worry about districted, we have to worry about forwards, we have to worry about forwards are the sense of the

Executive Office, Enterprise Information Systems (PEO, EIS), at Fort Belvoir, Va. "We don't want to be on the bleeding edge of technology." Today, government agencies require wireless technology to meet the Federal Information Processing Standards

(FIFS). Unless it's up to that level of security, government agrecies can't deploy them," says Frost & Salliwan's Lee. CAISI is one of the first Army systems to be FIFS-compliant, which opens the door to many future uses. "I see wireless bringing better assistance to the [troops] that are deployed, providing randu information so they

can see what's available on the battlefield, which will help leaders to determine what combat units are equipped to go forward," Fiorella says. B Collett is a freelance writer in Sterling.

Collett is a freelance writer in Sterling Va. Contact her at stcollett@aol.com. Bob Brewin and Tom Hoffman also contributed to this report.

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8:00em to 8:45em

Outsourcing Watch 2003 The Best of Both Shores

9:00am to 9:45am

y Update ting Your IT Sourcing Option Bart Perkins, Managing Partner,

9:45am to 10:15am James Beattle, EVP and CTO.

10:15em to 10:30em 10:30am to 11:30am

Editor in Chief, Computerworld Jerry McElhatton, Senior EVP

of Global Technology and Operations MasterCard International

 Tasos Tsolakia, VP of Global Technology Operations, Global Exchange Services

11:30am to Noon Open Forum



8:45am to 9:00am





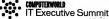








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series



A SANT FACTORIOUS YERGE YEAR SANT AND THE PROPERTY OF THE SAND THE PROPERTY OF THE SAND THE PROPERTY OF THE SAND

NA WIDE RANGE of companies, wireless often wears a blue collar, supporting gritty but essential applications far removed from the world of executive BlackBerry pagers or airport lounge wireless LAN "hot spots,"

These emerging blue-collar wireless uses make possible fundamental business processes that often can't be hooked into wired networks due to geographic or environmental conditions, says Craig Mathias, an analyst at Farpoint Group in Ashland, Mass.

In the Trucks

It was geography that dictated the design of Sears, Robents and OA: new wireless system for its products repair division. The cale mounted Mobile Base Station installed last mooth on all MOOO repair trucks had to provide 100% nationwide coverage to technicans could wirelessly transmit data from customer sites anywhere in the UK, sto back-end systems, says Dave Sankey, director of process and technology development at Sears.

notogy development at Search, According to Sankey, the Mobile Base Station, developed by Wireless Matrix Corp. in Calgary, Alberta, houses a WLAN, terrestrial packet data and satellite system in a package that's II in. wide by 6/ in. high.

The retailer has also equipped its service technicians with Smart Tool-box, a rugged, Pentium-powered touch-screen laptop from Itronix Corp. in Spokane, Wash, Each laptop comes packed with a library of product repair information that includes more than 9,000 illustrations and schematics of

every product the company sells and services, from washers to lawn tractors. The product library also cootains a list of 44.5 million parts that might be needed to make repairs, as well as an invectory of the 2,500 parts carried on every truck, Sankey says.

The laptops also have built-in 802.1lb WLAN moderns, which communicate with the Mobile Base Station. Service technicians no longer need leave a customer side to order a part not found in the database. They can place the order with a supplier, with the WLAN serving as the link to the Mobile Base Station, Snaker says.

Al Milligam, executive vice president for business operations at Wireless Matrix, says the WLAN access point in Mobile Base Station connects with two wide-area wireless systems: a terrestrial octwork that operates over Atlanta-based Gingular Wireless' Mobiter packet data octwork, and the mobile satellite system operated by Mobile Satellite Veotures LP in Reston, Va.

Controller software built into Mobile Base Statioo includes "best route" algorithms that select the terrestrial or satellite circuit with the strongest signal that's closest to Mobile Base Station, Milligan says. Althouth satellite data service is

viewed as expensive, Milligan says his company buys large blocks of satellite time from Mobile Satellite Ventures, minimizing the cost differential between satellite and terrestrial service. The data rates for both the Mobilex network and the mobile satellite system are relatively slow (Ribbliviee. and 60 750kbivee., respectively), but the both of the both of the cost of the both of the cost of the both of the cost of the both of the

Russ Molitor, a Sears service technician in Bloomingdale, III., has been a Smart Tootbox and Mobile Base Station beta tester for the past 18 Station beta tester for the past 18 months. He says be saves imulusable time locating parts because he can communicate directly from the job site, rather than having to walk back to his truck.

It also eliminates the time he used to spend on the phone — often wairing on hold — trying to find a part from Sears' myriad suppliers. Molitor asys being able to order online saves him from the routine mistake of ordering the right part but in the wrong color.

Sankey declines to specify total costs or investment payback for Smart Toolbox and Mobile Base Station ex-







most people's lists of businesses that are likely to be Internet-enabled, but Michael Murphy, Caterpillar's Mine-Star manager, says mining equipment has become so automated that the average mine truck or bulldozer has five IP addresses. The automation pays off in an industry driven by wildly fluctuating commodity prices, Long says. When coal prices increase, the wireless network helps Thunder Basin quickly ramp up

cept to say that the hardware bill alone totaled \$60 million. He says that mooey has already been recouped by time savings from the product and parts library system

In the Mines

Geography was the reason for the installation of a WLAN system that spans 20 square miles at the Thunder Basin coal mine in Wright, Wyo., ope ated by St. Louis-based Arch Coal Inc. Jim Long, a Global Positioning System (GPS) project engineer at the mine. says the WLAN consists of a 2.4-GHz cross-mine link with six access points feeding another three access points in the 900-MHz band. The WLAN serves as the backbone for the MineStar integrated mining information system developed by Caterpillar Inc. in Peoria, Ill

The WLAN distributes finely tuned location data from on-site GPS kine matic receivers. Those receivers grab the GPS signals from space and refine the location data so it's accurate to within 1 cootimeter instead of 25 meters. This location data is distributed to WLAN terminals and GPS receivers honked up to rugged computers with color displays in the 35 coal-hauling trucks and six bulldozers that operate in the mine, Long says.

When a new road needs to be built. Long says, he designs it on an officebased computer-aided design (CAD) system and sends it over the network to a bulldozer operator. "The bulldozer operator) can see what he needs to cut and fill to build that road," says Long. The WLAN in the bulldozer also automatically feeds real-time information of the work it's doing back to the office CAD system, allowing supervi-

sors to monitor progress, Long adds. Coal mines might fall at the end of production. In tight times, it brings efficiency to an operation that has to watch its costs, he says.

On the Docks

Mike Taylor, CIO at Todd Shipyards Corp. in Seattle, installed a system that uses an 802.11b WLAN and rugged Palm OS-based handheld devices from Symbol Technologies Inc. in Holtsville. N.Y., to belo manage one of his company's biggest costs: timekeeping and management of its 1,200 union workers. The old timecard system was prone to error, subject to rounding by workers and took 24 hours to transmit information to managers.

The Electronic Labor and Time Collection system, online since October, provides Todd Shipyards with highly accurate time records and a hetter way for managers to allocate personnel from job to job - and keep track of billing for various projects happening within the 44-acre shipvard. All workers have a magnetic-striped badge, which they swipe at a wired PC termi

Once workers have checked in and been assigned a task, that information is sent to one of 66 "leadmen" supervisors equipped with Palm wireless PDAs. The Palms let supervisors see at a glance the number of workers on each job within the yard, by craft and department. This allows Toyld Shin. yards to create a payroll and cost record for each job automatically and instantly at the end of the day wheo each worker clocks out.

The project cost about \$300,000. Taylor says, and it has already paid for itself by eliminating inaccurate time

records for workers paid by the hour. Taylor emphasizes that installing a WLAN system in a shipyard of that size is daunting. Not only does the area far exceed the 300-foot range of a single WLAN access point, but the metal structures within the yard also interfere with signal propagation. Taylor says be needed to install 33 access points, some with high-powered anten nas, to cover the area

Although much of the hype about the potential of wireless focuses on office or consumer applications, the technology really pays off at work on the remote front lines of many businesses, where wireless is the only communications alternative, says Farpoint's Mathias, a

SNAPSHOTS

38% of respondents said the had no impact on their organizations' wereless remorts

29% said the recession has caused funding to be delayed but planning is still moving ahead.

12% said projects were put on hold this year. 5% said their wreless projects

1% said they projects had received more lunding, and less than 196 said their project schedule had been

...... Wireless Priorities ow important is wireless



The Top 10 Wireless Devices in Use



ANALYST REPORT CARD

Which wireless vendors are poised for growth? And which are best answering the needs of corporate IT? Computerworld posed those questions to a group of industry watchers. Here's what they had to say:

Wireless LAN Hardware and Software OVERALL GRADE: A

Vendors that sell pear and software for wireless LANs are a bright spot in the wireless industry, analysts say. What's important to corporate IT is the trend toward a distributed WLAN infrastructure, which means putting WLAN intelligence on a controller device or switch in a wiring closet to control multiple, light access points, says Craig Mathias, an analyst at Ashland Mass based Farpoint Group.

Symbol Technologies Inc., Proxim Inc. and start-ups such as Aruba Wireless Networks, Trapeze Networks Inc. and Airespace Inc. are developing such designs, says Gemma Paulo, an analyst at In-Stat/MDR in Scottsdale, Ariz. Business users will see a growing

umber of WLAN embedded clients in lantons from IBM. Hewlett-Packand Co., Dell Computer Corp., Toshiba Corp., Fujitsu Ltd. and Sony Corp., Paulo says, and other vendors will pr vide embedded Wi-Fi access for PDAs. Motorola Inc., Prexim and Avaya Inc.

have struck a deal to develop a combination cellular/Wi-Fi handeet PROGRESS REPORT: Analysts say vendors

in this market are all making the grade. It may surprise some to know that when It comes to wireless access devices. Cisco Systems Inc. is the No. I wendor to the enterprise market, says Paulo. The top performers in WLAN security are companies that rely on stan-

dards, including Fortress Technologies Inc. in Oldsmar, Fla., and Funk Software Inc. in Cambridge Mass. sava Wai Sing Lee, an analyst at Frost & Sullivan in Toronto.

Mobile Carriers OVERALL GRADE: D

"The overall mobile operator con nity is doing a pretty miserable job of supporting the enterprise," says Ken Dulancy, an analyst at Garrner Inc. in Stamford, Conn. "They want to freach out 1 to corporate customers, but their people are poorly trained."

Dulancy says his corporate IT clients continually complain about a lack of IT knowledge among carriers that are now reselling cell phones and smart phones (as well as PDAs with wireless capability) and offering to intograte the devices with corporate networks and databases

The problem is that most carriers have sold network pipes at [a certain price per bit) and haven't trained their sales and support teams for needs of IT," he says, "If an IT exec tells a carrior be wants to link a smart phone over wireless back to DB2, the carrier's rep is likely to say, 'What is DB2, a charac-

ter in Star Wars?" Wireless operators are the No. I reason for the slow rollout of wireless data applications, Dulaney says, "Operators control the choke point but don't have the talent to guide deployments

forward," he says Mathias agrees that cellular carriers are in a sorry state. "All the carriers don't have enough cells, but there's no excuse for that anymore, and it's becoming unacceptable," he says.

The carriers also face a preponderance of problems with billing, including overly complex plans for corporate customers. Mathias says. He urges IT managers to watch for hidden changes.

PROGRESS REPORT: Dulancy says traditional IT vendors such as IBM and HP get an A for sales, integration and support, but most wireless carriers get a failing grade, Exceptions include Nextel Communications Inc. in Reston, Va., and Sprint PCS Group, Dulaney says. but the others are "off the deep end." Mathias rates New York-based Verion Wireless as the best carrier because it has more complete cellular territory coverage.

Handheld Devices OVERALL DRADE: R

Handheld hardware is beginning to drop in price, following the lead of Dell and HP, says Alex Slawsby, an analyst at Framingham, Mass.-based IDC. That price competition is making it hard for PDA makers Palm Inc. and Handspring Inc. to focus on software and on finding software-licensing part-

ners, he adds. Dell is also putting research-anddevelopment funds into wireless data sport, bardware and applications. and when various standards are set, Dell can be counted on to enter the market at a low price point, says Sam

Bhavnani, an analyst at Current Analysis Inc. in Sterling, Va. Research In Motion Ltd. (RIM) in Waterloo, Ontario, has always focused solely on the corporate user, analysts say. Although the company originally offered a handheld device that provided coovenient wireless access only to

e-mail, it's now expanding its relationships and broadening its product line. RIM is working with several carriers as well as Microsoft Corp. and London-based Symbian Ltd. for software development. Bhavnani sava.

PROORESS REPORT: Slawsby says the vendors getting top grades with corporate customers are those offering the fastest return on investment. He says that group includes RIM and Good Technology Inc., a Sunnyyale, Calif.

based RIM competitor Emphasis on ROI will continue to be a key factor, says Mathias. "IT manarers don't have the money they used to have and don't want to experiment," be says. "The wireless data industry grew in recent years off experiments. but now people want serious ROL"

less industry. Computerworld spoke with five top vendors to get their opinions on where the market is heading and what advances IT managers can expect in the coming year

Virtual roundtable participants: CHRIS SOLINGER, manager of partner marketing, Cisco Systems Inc.

JIM JOHNSON, vice president and neral manager, wireless networking

IOHN ROESE, chief technology officer, internava Networks Inc., Andover, Mar RAY MARTINO, vice president and p nager of the network pro-

LYNN LUCAS, director of soli marketing, WLAN division.

What does the client of the future look Blu? According to most estimates, 15% to 20% of notebook computers currently ship with wireless capabilities. That's expected to jump to 70% in the next several years, according to Intel's Johnson. While wireless technology poses battery problems for PDAs, "more and more, Wi-Fi technology is proliferating

in everything," Enterasys' Roese says. But wireless vendors are also focusing oo cellular phones. "An upcoming capability is to have a cell phone work over a wireless LAN infrastructure. Proxim's Lucas says. "Today, you can operate handsets over the 802.11b infrastructure, but if I can operate the cell phone over the WLAN infrastructure, that's a significant cost savines."

Cisco sees "combo phones" emereing next year that would use tradition al cellular service wheo outside and the WLAN infrastructure indoors. "It won't be until 2005 that they really take off, though," Cisco's Bolinger says.

Which wireless standard will take proce-

dence in the next year? Vendors agree than 802.11b will prevail for the next year. Acceptance of 802.11a, they say, has been slow, mainly due to economics Prices for 802.11b "are noing through the floor," says Bolinger. Meanwhile, moving to 802.11a would require tech pology upgrades or replacements, and increasing the speed of current wireless applications probably isn't critical enough to justify the cost. "In the enterprise market, Fd say wait until 802.Ha is more mature," says Symbol's Martino.

By the end of 2004, however 802 Ha will have its day, vendors say, *802.11a will start rampine in the second half of next year, and enterprise clients will start to do validations in the second half of the year," predicts Johnson. And 802.11g will make some gains, but not as much as 802.11a, because with the latter, you get more network capacity and channel density. "If you're trying to deploy media-rich, high-bandwidth

wireless, 802.11a is clearly the right choice," says Roese. Lucas is one dissenter. "We're seeing a leaning toward 802.11g, and that's because people are interested in the higher speeds but they want the backwards compatibility with existing

802 lib technology," she says. What developments do you see ha in security? Vendors agree that for most companies, security should no longer

IFWS

be a showstopper. By this fall, vendors will be required to support the Wi-Fi Protected Access (WPA) standard in order to be Wi-Fi-certified.

SPECIAL REPORT MOBILE & WIRELESS

The Wi-Fi Alliance released WPA late last year with the intention of strengthening the weak Wired Equivalent Privacy encryption standard that was previously built into Wi-Fi products. WPA also serves as an ioterim sten toward 802 Ili - a set of erandards that's expected to answer most security needs but won't be finished until early next year, "WPA is going to be the next important milestone in ensuring that 802.11 products are secure and can interoperate with other Wi-Fi products," says Lucas.

made to WLANs? Now that security is no longer an insurmountable hurdle for enterprise WLANs, vendors contend. the next big issue is manageability. "The chief cost of WLANs are people costs, and good management will lower costs. That's why it will be a big topic for next year," Bolinger says.

A new model of wireless networking will become popular in the next year to take some of the labor out of managing WLANs, according to Roese, Martino and Lucas. It involves moving intelligence out of the access points and into a central switch, resulting in centralized, automated remote manage-

ment capabilities In addition, says Lucas, the new architecture will help with security management, policy-based management and bandwidth man Exactly how this will be accom-

plished varies depending on what the vendors actually sell. Roese says Enterasys will ship technology this year that will belp shift intelligence into the switch, Lucas says Proxim's Meistro management infrastructure will be available later this year, and Martino says Symbol also has improved management capabilities in the works.

The picture changes a bit with Cisco. "These management issues need to be addressed, but not necessarily by buying a specialized controller," Bolinger says. Cisco offers access points with

management features, as well as a management platform for remotely managing hundreds of access points from a single console. The company plans to announce advanced manage ment capabilities in the coming year, Bolinger says.

Brandel is a freelance writer in Newton, Mass. Contact her at brandels@attbi.com.

SNAPSHOTS Wireless Insecurity



............ Top 10 Problems

Top Five Business Uses for Wireless

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Wireless Priorities
How important is wireless
Icchnology to your organization's
business goals and strategy?



Don't know - Not a impor

The Top 10 Wireless Devices in Use

- 1 Laptops 2 Cell phones
- 3 Handheld device
- Sablet PCs
 Bar code readers
- 7 BlackBerry devices
- 6 Smart phones
- Mobile data phones

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ANALYST REPORT CARD

INDUSTRY WATCHERS FROM TOP ANALYST FIRMS WEIGH IN ON WHICH WIRELESS SEGMENTS AND VENDORS ARE MAKING THE GRADE

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Wireless LAN Hardware and Software

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Dell can be counted on to enter the market at a low price point, says Sam Bhavnani, an analyst at Current Analysis Inc. in Sterling, Va. Research In Motion Ltd. (RIM) in Waterloo, Ontaria, has always focused solely on the consurar user, analysis.

say. Although the company originally offered a handheld device that provided convenient wireless access only to e-mail. It's now expending its relationships and broadening its product line. RIM is working with several carriers as well as Microsoft Corn, and Lonawell as Microsoft Corn, and Lon-

don-based Symbian Ltd. for software development, Bhavnani says. PROGRESS REPORT: Slawsby says the vendors getting tup grades with corporate customers are those offering the

rate customers are those offering the fastest return on investment. He says that group includes RIM and Good Technology Inc., a Sunnyvale, Califbased RIM competitor. Emphasis on ROI will continue to be

Emphasis un ROI will continue to be a key factor, says Mathias. "IT managers dun't have the money they used to have and don't want to experiment," he says. "The wireless data industry grew in recent years off experiments, but now people want serious ROI."⁹

The future is unfolding fast in the wireless industry. Computerworld spoke with five top vendors to get their opinions on where the market is heading and what advances IT managers can expect in the coming year

Virtual roundtable participants: CHRIS BOLINGER, manager of partner marketing. Cisco Systems Inc. JIM JOHNSON, vice president and general manager, wireless networking Intel Corn

JOHN ROESE, chief technology officer, Enterasys Networks Inc., Andover, Mass. RAY MARTINO, vice president and gen eral manager of the network products group. Symbol Technologies Inc. Heltsville NY

LYNN LUCAS, director of solutions marketing, WLAN divisio Proxim Inc., Sunnevale, Calif.

What does the client of the future look like? According to most estimates, 15% to 20% of notebook computers currently ship with wireless capabilities. That's expected to jump to 70% in the next several years, according to Intel's Johnson. While wireless technology poses battery problems for PDAs "more and more, Wi-Fi technology is proliferating in everything," Enterases' Roose says

But wireless vendors are also focusing on cellular phones. "An upcoming capability is to have a cell phone work over a wireless LAN infrastructure." Proxim's Lucas says, "Today, you can operate handsets over the 802.11b infrastructure, but if I can operate the cell phone over the WLAN infrastructure, that's a significant cost savings."

Cisco sees "combo phones" emeraing next year that would use traditional cellular service when outside and the WLAN infrastructure indoors. "In won't be until 2005 that they really take off, though," Ciscu's Bolimor says

Which wireless standard will take prece dence in the next year? Vendors agree that 802.Hb will prevail for the next year. Acceptance of 802.Ha, they say, hay been slow, mainly due to economics. Prices for 802.1lb "are going through the floor," says Bolinger, Meanwhile, moving to 802.11a would require technotogy upgrades or replacements, and increasing the speed of current wireless applications probably isn't critical enough to justify the cost. "In the enter-

prise market. I'd say wast until 802.IIa is By the end of 2004, however, 802.Ha will have its day vendors say: "802.Ha will start ramping in the second half of next year, and enterprise clients will start to do validations in the second half of the year," predicts Johnson. And 802.Hg will make some gains, but not as much as 802.1la, because with the latter, you get more network capacity and channel density, "If you're trying to deploy media-rich, high-bandwidth wireless, 802 Ha is clearly the right

choice," says Roese. Lucas is one dissenter. "We're seeing a leaning toward 802.He, and that's because people are interested in the higher speeds but they want the backwards compatibility with existing 802.11b technology," she says.

fhat developments do you see happening in security? Vendors agree that for most companies, security should no longer be a showstopper By this fall, vendors will be required to support the Wi-Fi Protected Access (WPA) standard in order to be Wi-Fi-certified.

The Wi-Fi Alliance released WPA late last year with the intention of strengthening the weak Wired Foundawas previously built into Wi-Fi products. WPA also serves as an interim step toward 802 IIi - a set of standards that's expected to answer most security needs but won't be finished. until early next year "WPA is guing to be the next important milestone in ensuring that 802.11 products are secure and can interoperate with other Wi-Fi products," says Lucas

What management improvements will be made to WLANs? Now that security is no loneer an insurmountable hurdle fur enterprise WLANs, wendors contend the next big issue is manageability. The chief cost of WLANs are people costs, and good management will lower costs. That's why it will be a big topic

for next year." Bolimor says A new model of wireless networking will become popular in the next year to take some of the labor out of managing WLANs, according to Roese, Martino and Lucas. It involves moving in-

telligence out of the access points and into a central switch, resulting in contralized, automated remote management capabilities. In addition, says Lucas, the new ar-

chitecture will help with security management, policy-based management and bandwidth management. Exactly how this will be accomplished varies depending on what the

vendors actually sell. Roese says Enterasys will ship technology this year that will help shift intelligence into the switch, Lucas says Proxim's Meistro management infrastructure will be available later this year, and Martino says Symbol also has improved management capabilities in the works. The picture changes a hit with Cisco.

These management issues need to be addressed, but not necessarily by buying a specialized controller," Bolinger says. Cisco offers access points with management features, as well as a management platform for remotels managing hundreds of access points from a simple console. The company plans to announce advanced management capabilities in the coming year. Bolinger says.

Brandel is a freelance writer in Newton, Mass. Contact her at brandels wattbi.com.



Top 10 Problems

Slew adoption rate

Top Five Business Uses for Wireless

Note Malters recovered page above

ABOUT THE SURVEY: Concuments's environ from Merch 24 through April 4 Respondent, travel 323 The average omprover need count at espon dents companies was more than 5,000 average ()



into mainstream business environments. But they pose some special deployment challenges

special deployment challenges when compared with their wired

counterparts.

Here are six frequently asked

questions IT managers should consider before installing a WLAN.

How to I plan expanity for a mobile network?
Wireless experts suggest that you first identity which applications the network will support and bow much bandwidth they will consume. Then calculate how many users need mobility and in what places within your organization they will require it.

Mext. apply this information in designing a network of wireless access points (AP). APs are the infrastructure radios, usually celling-mounted, which connect to the wired network on me side and to users' wireless network adapters over the airwayers on the other. Wireless veterans stress the importance of site narveys and performance testing to optimize

AP placement.
"This is because variations in firmware, antennas and physical layout can alter the performance and range of the very same [wireless] chip set," says Crair Mathias, an analyst at Europiat Group in

Ashland, Mass.

Because it's difficult to anticipate where walls and objects will interfere with wireless communication, a network staff member armed with a wireless laptop typically walks around, installs APs and tests cover-

This exercise will reveal how many APs you need to meet capacity requirements and how to position adjacent APs to prevent coverage holes. There are some rules of thumb about how many users a single AP can support. Gartner Inc., far example, recommends about 20 knowledge workers per 802.tilb.

(IIMbit/sec.) radio.

But these ratios vary. Warehouses often need lots of APs to ensure floorwide coverage. But warehouse applications dnn't consume much bandwidth, and utilization of these APs is often only 2%, says Rob Greenfield, chief scientist at SCLogic Inc., a reseller

Greenfield, chief scientist at SCLogic Inc., a reseller of WLANs in Beltsville, Md. On the other hand, a crowded office space will require many more APs — not to achieve range, but

to support more users and heftier applications.

"Shoot for under 40% to 50% AP utilization in office environments," Greenfield suggests. That will compensate for nnt knowing bow many users will be in range at any given time.

How can I audi destinement? Having multiple devices that use the aum frequency
can result in inseference with performance. United Parved Service Inc. learned
this when it combined sharet-range Risetoom (Moldin/ecc) wireless extendingly
with 802.10 LAMs in a warehouse pilot, explains
you'n Modardherm, for detecommunications analyst
company, 80th Bilectoch and 802.110 run in the
2-4-Gilt frequency band.

To solve the problem, UPS and its technology vendox, Symbol Technologies Inc. in Holtsville, NY, synchronized the Bluetooth network with Symbol's 802.11b APs. "Time Division Multiple Access technology in Symbol APs has scheduled the two networks to transmit at different intervals to avoid overlane," explains Mar-Sachers.

iapy, explains Macleachern.
And don't forget to alternate use of 802.11b
channels in neighboring APs to further minimize
interference, advises John Lawson, vice president
of IT and ClO at Tulane University in New Orieans.
The university has installed L200 APs from Andover, Mass.-based Entersays Networks Inc. across

WIRELESS LAN

To segregate traffic in oeighboring devices, 802.11h offers three different channels. 'Tve tried installing APs without channel planning," says Lawson, "The result was unacceptable interference."

Is my WLAN really secure? This is a complicated question. Security advances collectively called Wi-Fi Protected Access (WPA), based on emerging IEEE standards, will ship in new products later this year, WPA overcomes the ootorious static-encryption-key weaknesses in 802.11b's Wired Equivalent Privacy standard. In addition. comprehensive vendor-proprietary products and services have long been available to reinforce wire-

less privacy. However, to optimize security in WI ANs immediately, the best approach is to employ IPsec virtual private networks, which use Layer 3 encryption, even oo a local enterprise campus, says Dave Passmore, an analyst at Burton Group in Sterling, Va.

"This requires IPsec client software on user laptops and a device that terminates IPsec tunnels inside the enterprise network firewall," he explains. Passmore notes, however, that forthcoming WPAcompliant products should resolve the need for local IPsec use in many organizations.

Which technology should I choose from the alphabet soup of WLAN standards? Ken Dulaney, an analyst at Gartner in San Jose, has a simple answer: "802.11b is the only mature, worldwide standard

that can be deployed today," he says. "For most enterprises, 802,11b bandwidth should suffice for most office tasks for at least the next UPS, for example, is "building to current require-

ments, which is 802.11b," both in its warehouses and at its IT headquarters, says Fred Hoit, UPS's radio frequency infrastructure manager. "We anticipate a five-year life cycle," Hoit says, Opinions are mixed about 802.11a, the successor

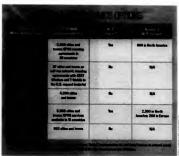
to 802.11b that runs in the 5-GHz frequency band with much faster speeds (54Mbit/sec.) but a shorter coverage range. On the plus side, you avoid interference wheo running Ila and IIb in parallel. because the two LANs use separate frequencies. But Greenfield says it's worth waiting a year for 802.Hg-compliant A step-by-step guide to ensi-proper decloyment of your

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ports aggregate 54Mbit/sec. speeds but runs in the 2.4-GHz hand and was designed for backward compatibility with 802.11h Finally, emerging dual- and multimode products "will eventually make upgradability a nonissue," says

Mathias. Several enterprise-class vendors offer APs that support 802.Ila and a slot for either an 802.Ilb or 802.Ug radio. Meanwhile, trimode 802.11 b/a/g chip sets recently

began shipping, so client adapters and APs that sup-port all WLANs could be available within a year.



What's the best way to manage my radio infrastructure? A wave of new WLAN "switch" architectures from established companies such as Symbol and Proxim Inc., as well as from a bevy of start-ups, aim to ease AP configuration and management in large installations. The idea is to centralize control of a dumb AP infrastructure in a "smart" collapsed-backhone device.

This approach purports to lower the cost of each AP — which adds up in large shops that might require hundreds or thousands of them and to enable greater scalability and WI AN CHECKUST

lower operations costs. But that doesn't mean that if you want a smart AP, you can't get centralized management, too - unless this option blows your budget. For example, Cisco Systems Inc. offers its Wireless LAN

Solutions Engine, a data center appliance and Cisco-Works management module that centrally configure and manages up to 500 APs. But Cisco Aironet 1100 and 1200 APs are far from dumb; they run the full complement of Cisco Internetworking Operating System routing software - enabling, for example, wireless virtual LAN (VLAN) support.

Symbol also supports wireless VLANs, but it builds them into its Mobius Axon wireless switch. not into the AP. VLAN profile information is enforced before incoming traffic hits the wired network or corbound traffic is distributed to wireless users.

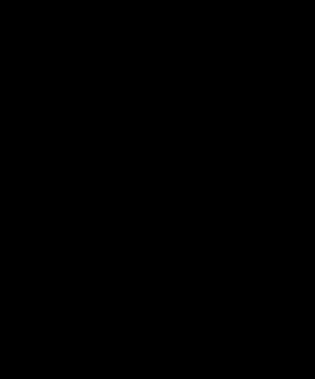
Can I integrate WLAMs with other networks? Network nirvana is when users can roam among dispurate wired and wireless networks without having to reconfigure settines or reauthenticate. Multimode products are emerging that combine sev eral versions of 802.II, as well as connectivity to 2.5-

and 3-peneration (2.5/3G) mobile WANs from the licensed carriers, For example, Texas Instruments Inc. in March announced chip sets for PDAs that combine 802.11b, GSM/GPRS and Bluetooth capabil ties. NetMotion Wireless Inc. in Seattle has client software for roaming among any type of packetbased wired or wireless LAN or WAN. The software simply detects the most robust network connection available and transparently connects the user to it. keeping VPN sessions intact.

Such internetwork roaming will grow increasing handy as WLAN-based public services, called Wi-Fi hot spots, continue to sprout up in airports, hotels malls and other public locations. The licensed 2.5/3G carriers have begun offering 802 IIb-based hot-spot services to complement their ubiquitous, but slower, 2.5/3G packet data services (see chart above).

Today's 2.5/3G services provide 20K to 60Kbit/sec throughput per user, depending on the technology used. So multimegabit-speed Wi-Fi networks, where available, offer a better-performing option.

Wexler is a freelance writer in Campbell, Calif. Contact her at immie@iwexler.com.



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WI AN CHECKLIST

A step-by-step guide to ensure

O QuickLink 37765

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MODILE DATA CEDVICE OFFICIALS

Carrier*/ Mobile WAN Inchrology	2.5/3G WAN service coverage (U.S.)	Wi-Fi services?	Number of W-Fi hot spots
	5,000 cities and towns; 6PRS reaming agreements in 25 countries	Yes	600 in North America
ENT	67 cities and towns on self-not network; reaming agreements with AT&T Wireless and T-Mobile in the U.S. expand footprint	No	86/8
-	4,000 cities and towns	No	N/A
	8,000 cities and towns; SPRS services available in 15 countries	Yes	2,300 in North America: 200 in Europe
	900 cities and towns	No	N/A

e Martel Con resis Inc.'s DEN tech place isn't a standarde-based 2.5/36 network and non-at and 150 hitser

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SPECIAL REPORT MOBILE & WIRELESS



ON THE HONI

T SEEMS LIKE ONLY yesterday that wireless applications were a big deal. Early adopters like Frito-Lay and FedEx were studied and revered; the risks and rewards of their pioneering wireless networks were pondered and analyzed. But you know what they say about pioneers - they're the ones with arrows sticking out of their backs.

Efforts by the FedExes and Frito-Lays of the world deserve to be praised, for they blazed the trail for today's wireless adopters - the smaller companies whose shirts bear no arrow holes. Here we take a look at some of those second-generation adopters to see what prompted them to go wireless, what tools they used and how the projects are working out.

NAPPI DISTRIBUTORS PORTLAND, MAINE

INDUSTRY: Beverage distribution

REVENUE: \$42 million APPLICATION: Order entry tool from Vermont

Information Processing Inc., Calchester, VI. BENEFITS: Lets sales force make more customer visits, cuts steen from order encores, allows resptomers to better predict costs and is cheaper than the old telephone system

DRAWBACKS: Doesn't work well near ractor

NAPPL'S SALESPEOPLE used to work in a fashion familiar to all 20th century road warriors: They would visit a customer, such as a liquor store

in Kittery, Maine, write down order information, then call the orders in from a mobile phone or pay phone Back at beadquarters in Portland, a representative would take the orders. enter them into Nappi's back-office systems (which run on an IBM AS/ 400) and print them out. Warehouse

pickers used the printouts to fill orders for the next day's shipments. As familiar as the process was, there was much that could go wrong. For starters, it wasn't unusual for Napol's sales reps to overwhelm headquarters with calls. This resulted in lots of waiting around, which meant salespeople either cooled their heels at pay phones rather than hitting the road and visiting other customers or sat on hold on cell phones to the tune of 65 cents per

minute. And those minutes added up

for a relatively small business.

One day, a frustrated sales cen came into the office of Peter Paglio, Nappi's IT director, and said he had heard that another distributor in the area was using wireless computers to enter orders. "He was kind of a big talker, so I wasn't sure he was telling me the truth at

first," Paglio says. "But he had a number for [Vermoot Information Processingl so I checked it out Like many of the companies favored by second-generation wireless

adopters, Vermont Information Processing is highly specialized: Its products and services are for beverage wholesalers. This niche approach makes sense, according to Gartner Inc.

analyst Phillip Redman. "To make wireless cost-effective the vendors have got to know an awful lot about their clients' business processes," Redman says. "That's wby you see so many adopters skipping a Microsoft or an IBM and going instead to specialist (vendor) companies in areas like transportation and warehousing."

Paglio says his first move was to make sure Nappi's sales territory was served by a carrier using the Cellular Digital Packet Data specification. which allows IP traffic to run on ton of

analog phone service. Nappi was in luck: AT&T Corp. offered the specification in "99.9% of our territory," Paglio says.

The distributor uses Symbol Technologies Inc. 1733 handheld devices with bar code scanners running the Palm OS operating system. The handhelds communicate with headquarters over the AT&T phone network at 9.6Kbit/sec.; Vermont Informatino Processing is tweaking its software to

nearly triple that speed Sales reps now key in orders on the fly and send them straight to Napol's IBM AS/400, where the next day's loads and schedules are determined automatically and sent to the warehouse for picking. Sales reps no longer call from pay phones, and office workers don't spend time keying in orders. Paglio says the wireless system costs Nappi \$800 per month to support all 32 of its sales reps; previously, the company paid \$600 per month for 15 cell phones, plus toll calls from pay

phones for the salespeople who didn't have phones of their own According to Paglio, the system has

just a few drawbacks. "It goes wacky around radar" like that in use in airports and a local Naval base he says. And some sales reps aren't crazy about a recent upgrade that offers more features but is harder to learn.

OLD DOMINION FREIGHT LINE INC., THOMASVILLE N.C.

INDUSTRY: Transportation REVENUE: \$566.5 million

APPLICATION: Homegrown route-planning system for drivers

BENEFITS: Better service at loading docks. ncreased efficiency DRAWBACKS: Drivers may have "Big Brother

S GETTING A STATUS BOOST OVER Competitors sufficient reason to de-

ploy a \$3 million wireless application? Actually, that's an exaggeration, Old Dominion has sarpered numerous benefits from its 1,000 Symbol Tech. nologies handhelds, including increased customer satisfaction. improved driver efficiency and a decrease in loading errors, says senior application development manager Bar ry Craver. He describes Old Dominion as a "super-regional" carrier, meaning that although the bulk of the compamy's freight is hauled in the Southeast. it has outposts nationwide.

But according to Craver, simply being equipped with real-time commun cation tools has increased the status of Old Dominioo's drivers when they arrive at their stops. And that alone

boosts efficiency. "The service centers and shippers know which (trucking) lines have computers," Craver says, "That makes a difference - we've been bumped up in some places." That bump means less waiting in line, which translates into

more stops per day. The reason: When a trucker without a computer complains to his dispatcher that he's being forced to wait for service or a delivery, it's his word

against the shipper's. On the other hand, drivers with handhelds can prove where they are and how long, to the second, they've been idle. The end result for Old Dominion is less waiting around and

more stops per driver per day. The company used Microsoft Embedded Visual Basic to develop its own applications for the Symbol devices.

which run Windows CE 3.0 When it came to navigating the crazy quilt of U.S. wireless networks. Old Dominion turned to Aether Systems Inc. The Owings Mills, Md.-based vendor offers middleware and services

ON THE HEELS OF THE PIONEERS

that let companies outsource all or part of their wireless needs.

For example, while Old Dominion's application sends and receives transmissions between trucks and head-quarters, Archer manages connections to the various wireless providers and in Taddition, Archer manages the overnight synchronization of drivers handlelds. This saves money, Old Dominion uses the proprietary Ardisnetwork from Reson, Va-based Motient Corp., which charges by the communication only where it adds.

value, as in proof-of-delivery messages. Old Dominion is deploying another 1,000 handhelds, but don't expect all of its drivers to applaud. In an unexpected benefit, the com-

In an unexpected benefit, the company has noticed a reduction in miles between stops among wirelessequipped truckers.

"We think maybe they got more effi-"We think maybe they got more effi-

cient because there's a little more accountability them. Crayer says, Craver acknowledges that some drivers may resent the system's vigilant racking of their whereabous. However, office workers have grown accustomed to having their Internet use monitored by their employer, Craver says, and in the same way, be believes all Old Dominion truckers will accept the system over time.

THE F.A. BARTLETT TREE EXPERT CO., STAMFORD, CONN

INDUSTRY: Landscaping

REVENUE: \$120 million

APPLICATION: Mobile CRM tool for arborsts, developed by in-house staff and SharpHat Inc. in

Englewood Ciffs, N.J.

BENEFITS: Faster quotes for customers, competitive entre new strater competitions.

tive edge over smaller competitors

DRAWBACKS: No real-time communication yet, touch culture change for veteran employees.

Some companies neptor mobile and wireless applications in an effort to emulate larger competitors. F.A. Bartlett did the reverse, using its relatively large size and budget to create an application few competitors could

hope to match.
With nearly 100 offices throughout
the U.S. and the U.K., F.A. Bartlett is a
relative giant in an industry composed
almost entirely of mom and pop operations. But in early 2001, the landscap-

tions. But in early 2001, the landscaping company determined that it wasn't capitalizing on its size. Standard processes were few and far between. In particular, the price quotes prepared by sales staffers (called are-

perween. in particular, the price quotes prepared by sales staffers (called arborists) were "all over the place," according to David Andry, the company's vice president of IT. Most arborists took notes by hand

Most arborists took notes by hand when visiting clients and prospective clients, then handed off those notes—centrally—on an assistant. As much as two weeks might pass between the time of a visit and the time a guote was mailed out. That translated to lost revenue as prospects cooled off and met with competitors.

Moreover, the language used by ar-

anotover, the imposes yeared widely.
This meant F.A. Burtlett ran the risk of
not meeting widely accepted industry
guidelines — in the landscapting industry, terms used to communicate with
customers are mandated by the Maschester, N.H.-based Tree Care Industry
Association (TCIA). The loose
guousey way F.A. Burtlett prepared
ounter made it impossible for head-

quarters to be certain that employees were following the rules.

F.A. Bartlett decided to standardize its arborists' work by equipping them with Fujitsu Stylistic LT C300 mobile pen tablet computers. Then it had to develop a software application for cus-

"I would have preferred an off-theshelf application," Andry says, but there was oothing on the market that met company needs. According to Isaac Ro, an analyst at Boston-based Aberdeen Group Inc., it's just a matter of time before a ven-

dor fills that void.

"The wireless (vendor) companies that are most successful serve an incredibly tight niche," due to the need to understand business processes before building applications, Ro explains. He points to Ollspace Inc., a New York-based company focused on petro-

leam trading, and Telispark Inc., an Arlington, Va.-based supply chain specialist, as examples. F.A. Bartlett pulled together a 10member committee with representatives from several regions. They drew up a list of desired features and functions, then turned the project over to a team composed of in-house developers and SharpHat representatives.

The application was developed and refined over a one-year period. In late 2001, it was rolled out to F.A. Bartlett's 200 arbarius

Today, arborists turn around quotes not in weeks, but in about three minutes, and their vehicles are equipped with mobile printers. Andry says the ability to present a quote immediately after a consultation has "significantly" increased business.

Moreover, arborists have a number

of new tools to help them close sales.
A glance at their Pulitsu devices shows them maps of clients' properties and offiers a history of services performed, down to individual trees (customer information dating back seven years was loaded into the system).

Arborists can see if customers are current on their accounts. They can offer white papers written by experts at F.A. Bartlett's laboratory in Charlotte, N.C. They're even reminded of the

names of clients' kids and pets.
All quotes are presented in TCIAapproved language, ensuring that the company meets industry language

company meets industry language standards.

F.A. Bartlett says it spent approximately \$1 million on the application, which it predicts will pay for itself in about four years through reduced pa-

perwork costs and increased revenue.
The application isn't perfect, Andry acknowledges. For starters, there is no real-time communication between mobile devices and headquarters — it was simply too expensive. But Andry says F.A. Bartlett is "absolutely revisiting that," and the company expects to have a pilot in place before the end of

this year.
Today, arborists place their handhelds in cradles overnight. Through a Microsoft Net Web services application, the day's data is replicated to a server at F.A. Bartlett's headquarters. The company uses Windows 2000 and Oracle Corp. database and CRM appli-

cations.

The other lesson learned, Andry says, is that persuading longtime arborists to use a modern mobile tool

ion't always easy.

"There are so many personalities in this business," he says. "The company as a whole thinks it's great, but it'a been a real culture shock for some people." \$

Ulfelder is a freelance writer in Southboro, Mass. Contact him at sulfelder@charter.net.

IT Careers: Utility Industry Focuses on Cost-Cutting, Security



control centers.
Larga-scale integration. Cyber attacks.
It's not just the staff of national defense and homeland security.
These three areas, along with intense cost pressures, are tha primary focus of information.

These three areas, along with intense cost pressures, are tha primary focus of information lechnology efforts across the utility industry. Better then

60% of utility companies experienced cyber attacks in the second half of 2002. The cost pressures are extensive, rethying on technology to produce greater efficiency. And the grid generating and transmitting energy is aging. It's a mix that is ripe for technology solutions.

According to Becky Blalock, senior vice president and chief information officer for The Southern Co., these issues are coupled with whall les ahead. She adds to the list wiveless networking, the ability to add 60 90,000 customers per year with technology instead of people, and power line carrier technology that will provide high speed into to rural areas

Block and Southern have waithered the paid two strukture years continued to rever in one-selectings, despite budget cost, through agreesive negotiations. The \$13.5 bit on vitility based on Albacia is currently implementing onlineprite application integration. The one-system, which will be high operational in Soft, provides real-time neight produce casebility which also providing command and counted over the supply claim is landed wereyfred (see as weekbouring to the realized through the supply of the section of the integration of the section of the section of the section left materials and procurrently system will drive down changes to the week over applications.

"What has been bad for tha IT industry (as a whole) her allowed us to continue terresting," Balock spry of Southern's strategy application of IT to bostness issues. "Our per bill cost is among this lowest in the industry. We've brought one systems that help one greatmon business do a better jord predictive realistinance, to assure we stay up and nament," May to solonig at systems to help give our up and nament, May to solonig at systems to help give our business. For instance, we acquired a gas company that was obtained as for instance, we acquired a gas company that was obtained as for instance, we acquired a gas company that was obtained as for instance, we acquired a gas company that was obtained as for instance, we acquired a gas company that was obtained as for instance, we acquired a gas company that was obtained as for instance, we acquired a gas company that was obtained as for instance, we acquired a gas company that was obtained as for instance, we acquired a gas company that was obtained as for instance, and the solution of the

Critical IT taken has been core to this technology stralegy Bladock is class that shift looking for people who not only have a good education record, but also people who have proven they are creative and innovistiva leaders with high relicities. Till all one whose, compretations on originity and class. The class when we consider the strategy case as the stave, the says. "Every day he to be a study of the business."

That's why Blalock's staff not only develops technology bualso spends time with field crews on the transvession and distribution side of the business and in power plants learing the generation side of the business. She believes this system's approach allows Southern's IT group to serve asbreeding ground of business talkers.

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Continued from page I

Pfizer

ing distributed to the employees, who typically work out of their homes, will also include huilt-in 802.Uh Wi-Fi wireless LAN access points and cards.

Stallard declined to com ment about the cost of the broadband installation or the return on investment Pfizer expects. But he said the network should save time for sales reps by speeding up the process of synchronizing CRM data with the company's back-end systems, which chews up an average of two

bours per day for workers using dial-up connections, according to Stallard. In addition, the broadband capabilities will let the remo workers use Web conferencing software on their IRM ThinkPad notebooks to take part in internal meetings that would otherwise require at least two days of travel. Stalfard said.

Remote workers reported an average 33% productivity increase as a result of getting broadband connections, according to a recent survey of 865 users that was funded by the AT&T Foundation and re-

leased last week by the International Telework Association & Council (TTAC) in Wakefield, Mass.

Tim Kane, president of ITAC and CEO of Kinetic Workplace Inc., a telecommuting consultancy in Pittsburgh, said he doesn't know of any spanies that have installed hroadband networks on the

scale of the one planned by Pfizer. Pfizer is outsourcing development and management of the broadband network to Norcross, Ga.-based Netifica Communications Inc., which started rolling out technology to Pfizer employees in March About 600 users are now live and roughly 1,000 will be

added monthly. Netifice said. Stallard said Pfizer officials decided not to do the work internally because of the complexity of dealing with cable TV and local telephone com-

nanies across the U.S. Because each of those companies has its own variations on modern and router setups Stallard said, as many as 3,000 different network configuration settings may have to be

distributed for installation on the home-office routers. "I could not deal with it." he said. Greg Davis, vice president of marketing at Netifice, said

the company will provide Pfizer workers with VPN client software that supports the triple Data Encryption Standard and is sold by AT&T Corp's global network division. Meanwhile, Netifice plans to use routers and re-

Pfizer's Distributed

Broadband Network · Will provide cable or DSL lines to almost 80% of the company's 13,000-person sales force.

■ Utilizes precontinued routers so salf-install time for end users should average 10 minutes · Includes built-in Wi-Fi access points and cards as part of the network hardware

 Is designed to dramatically re-duce the time needed to synchro nize CRM data with Pluzer's corporabe mederns

more network management and provisioning software developed by Alameda, Calif.-

based Netopia Inc. Jeff Porter, vice president of marketing at Netopia, said the four- or eight-port routers are being configured to support the type of connection - cable modem or DSL - used by various Pfizer sales reps.

The routers also include an installation wizard that fetches the correct settings for each device from a Netifice-bosted Window NT server pupping Netopia's Java-based net-Octopus software. Porter said.

Stallard said be doesn't plan to activate the network's Wi-Fi (catures until Netopia and Netifice develop a way to automatically configure the client cards for individual end users - a task that Porter esti mated could be finished this summer

Some of the 3,000 or so sales employees who initially won't get access to the network age in locations so remote that securing broadband lines for them may be impossible, Stallard said. He added that Pfizer might eventually use satellites to connect the orphaned users to the net-

Continued from page I Windows 2003

named Yukon, which will soon go into beta testing. Exchange Server users have one choice. The only version that can be installed on the new operating system is Ex-

change 2003, and it's not due motif common "I think Microsoft owes it to their customers to ensure backwards competibility and interoperability for at least five years," said Derek Gee, vice president and director of

system architecture and integration at Ameriquest Mortgage Co. in Orange, Calif. *Another reason Microsoft should support some of their older versions is to maintain customer lovalty," said Steve Sommer, CIO at Hughes, Hubbard & Reed LLP in New York.

"There are some big customers that cannot afford to upgrade right now." Many users are sympathetic to Microsoft's claims that extensive security, Web server and Active Directory improvements affect not only the operating system but also am applications that rely on it. They said they understand why some older apoli won't be supported

on Windows Server "If it's really a major upgrade, then Microsoft can't be

C OxickLink 30231 expected to make substantial improvements to the product while at the same time bring-

ing along all its old baggage, said Rich Eber, development service director at Hawaiian Electric Co. in Honolulu. But if users find that the core Windows server operat-

ing system basn't changed internally as much as Microsoft has portraved, "there should be a backlash against this lack

of support," Eber said. Neville Teagarden, CIO at Navigant International Inc. in Englewood, Colo., said security has sourced his company to invest time during the past year to get the latest versions of Microsoft software, "My CIO colleagues should be asking themselves whether they can afford the security risks of using older ver-

sions of Microsoft DRE ONLINE products," he said. Microsoft officials elaborate on the Windows Server 2003 Those users who have tagged on upgrades, however.

may not be pleased to see that Microsoft won't be supporting older versions of its software on the latest operating system.

"Expecting companies to upgrade everything in their infrastructure to set the features from a single product, in this case Windows 2003, is unrealistic," said Dave Curran, manager of IT at CE Franklin Ltd. in Calgary, Alberta. "This smells of a pure money grab

by Microsoft." Curran said CE Franklin will

Server 2003 by at least 12 months because of the application compatibility issue. The oil and gas equipment supplier is still running Exchange 5.5 on Windows NT 4.0, and a simultaneous migration would be "ton much for us to undertake in a single uperade," he said

Aleiandro Bombaci, CIO at Empresas Polar, a consumer goods maker and distributor in Caracas. Venezuela, said his company typically migrates the operating system - the "enabler layer" - and then the applications. "Upgrading both at the same time is too risky,"

he said, although in his case. the upgrades mostly involve non-Microsoft applications. Most Microsoft server applications will run fine in an environment that has a mix of servers running Windows Server 2003 and Windows Server 2000, said Barry Goffe. group manager of Microsoft's server platform division, Ex-

coexist in a Windows Server 2003 environment, as long as it's installed on a server running Windows 2000 with Service Pack I With about 350 code changes.

in Windows Server affecting Exchange, Microsoft said it decided that customers would be better served if it focused development on Exchange 2003 rather than on updating old versions, so it could take advantage of improvements in Internet Information Server (IIS) 6.0. Exchange 2000 and 2003 rely heavily on IIS for Internetbased protocol services.

But some users are upset by the decision. For example, Rick Weaver, director of technical architecture at Hilton Hotels Corp. in Memphis said Hilton is running a mix of Exchange 5.5 and 2000 and does slow migrations "because they

are extremely painful." "It would encourage acceptance of the new operating system if the old apps ran on it," Weaver said. 9

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FRANK HAYES . FRANKLY SPEAKING

Business Leads IT

T A BREAKFAST MEETING at last week's Cutter Consortium Summit 2003 conference, one deep thinker pointed to FedEx's Fred Smith as a CEO who really understands the value of IT. "I remember Fred Smith talking about IT like it was more important than the planes," said Cutter consultant Michael Mah.

Well, yeah. That's because at FedEx, IT is more important than the planes. Without its package-tracking systems, FedEx can't charge premium prices for overnight delivery. IT makes the money flow.

No wonder Fred Smith understands its value.

And no wooder so many other CEOs doo't. Much of the discussion at that breakfast meeting was about how to market IT to other parts of a business (see story, QuickLink 38135). People talked about positioning about explaining IT's unique situation in the organization, about translating techspeak into boardroomspeak.

Yeah, sure, fine. Think that'll actually coovince anyone of IT's value as a core competency at your company?

There's an easy test for what qualifies as a core competency in a business. Are you directly involved in extracting money from customers in exchange for products or services? Then you're core. If not, you're not.

Your CEO knows that. And if IT is core in your business, your CEO knows that too. But it's probably not. And positioning it and explaining it won't change that situation.

Neither will translating techspeak into boardroomsneak, which has long been a Holy Grail for IT executives. Look, no one in the boardroom wants a translation of techspeak any more than they want translations of salesspeak or logistics-speak or shop-floor-speak.

If you're translating techspeak to boardroomspeak, that means you're going about it wrong. You're bringing technology to the table and trying to explain how it's valuable to the business That's backward You should be identifying business needs and then explaining how technology can meet them.

In other words, you should start your thinking with the business, not with the technology.

And to do that, you've got to know your business. If you want to start making IT core in your company, you need to know as much

about how your company actually builds and moves and sells and collects mooey for products and services as you know about speeds and feeds and hite and wires

You need to know your company's business processes inside and out. Not the theory not the wishful thinking that project specifications

get based on, but how it's actually done You need to know why it's done that way what was tried and failed, what was never tried

because politics or business conditions or lack of the right technology prevented it. You need to know what can be changed and what's sacrosanct. You need to know where a

know who will help make that happen. You won't find out any of those things by researching technology. You'll only do it by talking first to business-side executives, theo to the managers who work for them. Talk up the opportunity for them to look good, the chance for them to take credit if you can find ways of making their operations more successful.

Then, once they've said yes, stop talking Observe, Listen, Ask questions, Look for the places where IT really could transform how

they do your company's business. That's how you'll get a shot at proving IT's value as a core competency - through transformation, not marketing.

Sure, you can use marketing techniques to raise IT's profile. You can remind other department that IT does deliver value. You can make the case for IT's usefulness But if you can find a way to

make IT as core to your business as it is to FedEx, you can bet your CEO will value IT every bit as much as Fred Smith &



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